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MAT 2015 Question Paper

Management Aptitude Test conducted by AIMA

MANAGEMENT APTITUDE TEST (MAT)

Held on : February 2015

Time : 2.5 hrs **(BASED ON MEMORY)** *Maximum Marks : 200*

SECTION-A : English Language

DIRECTIONS (Qs. 1-20) : *Study the passages below and answer the questions that follow.*

PASSAGE I

High expectations that preceded PM Modi's Australia visit were dramatically translated into a promise of a new beginning, shifting away from the neglect that had characterised bilateral relation for nearly 30 years. The Australian PM was clearly amazed at the kind of reception his counterparts received from the Indian community and the enthusiasm with which PM Modi embraced his hectic schedule. For Modi, the warmth the Australian hosts extended, starting with the role, he was invited to play at the G20 Summit that endorsed his call for joint action against black money and tax evasion, would have reflected Canberra's desire for a closer relationship.

Modi realised that it was not the oceans that separated them but a blinkered view that failed to recognise the multiple shared views and aspirations. The early conclusion of the Comprehensive Economic Cooperation Agreement would be mutually beneficial, unlike the recently concluded Australia-China FTA, which has already attracted severe criticism as a sell out to Beijing. Hopefully, a separate agreement would be entered into on market access for agricultural products and services opening the way for exports of meat, dairy products and wine from Australia and fruits, especially mangoes and vegetables from India.

Delhi would benefit from Australian expertise in enhancing technical and food safety standards. Simultaneously, India needs to deliver on long awaited growth in economic and labour reforms including the ease of doing business. The Australian Business Summit in India in January, 2014 should be developed into a regular platform for identifying new technologies and collaborations. Canberra's assurance that uranium sales to India will commence soon is welcome. But, apart from nuclear power, India's energy demands will make it dependent on an energy mix ranging from coal to hydropower to renewables. Each holds considerable promise for cooperation with Australian business and industry. Without an assured energy supply, India's growth story will be stalled with serious ramifications for the global economy.

Both PMs are aware of this. PM's 'Make in India' offers the ideal platform for the Australian vocational educational sector to convert its business model (into one where large number of Indian students are trained in India) so that Australian industry could share their production base to India. This means opening Australian vocational training schools, in collaboration with Indian institutions, and specifically targeting the requirements of the Australian consumer.

This has huge possibilities for the Australian VET sector and Australian business. It is equally important for grater collaboration between educational institutes, particularly in Research and Development (R & D). The decision to agree on defence and security cooperation, particularly with regard to maritime security is a path-breaking development and reflects the shared commitment for a dispute free Pacific ocean that is critical for commercial navigation. It must have been heart-warming for Abbott to hear that Australia is not at the periphery of India's vision but rather, that she is at the centre. But then, Modi also reminded that good words matter little if they are not backed by good deeds.

1. According to the passage, Australia and India hold great promise for cooperation in which one of the following sectors?
   (a) Energy (b) Agriculture
   (c) Education (d) All of the above
2. During the past few years, relations between India and Australia did not improve due to
   (a) international economic conditions
   (b) poor response from Australia despite efforts by India
   (c) years of neglect by India
   (d) None of the above
3. Keeping in view, the 'Make in India' initiative promoted by the Indian Government, the contribution of Australian education sector in India
   (a) can be very minimal
   (b) is quite irrelevant
   (c) has really great potential
   (d) will not have much gains for Australia
4. As per the passage, which of the following statements is not true?
   (a) Australia can help India in producing nuclear energy
   (b) The Australian PM was amazed at the kind of reception Modi received
   (c) The recent economic agreement between China and Australia has received much adverse reaction.
   (d) Australia has been communicated that India really cares for good relations with it

PASSAGE II

Contrary to a common misconception, we need to fear road accidents far more than terrorist bombs. Records show that 137423 people died in 2013 from accidents on Indian roads, the single biggest cause of accidental death by a long margin. It's welcome, therefore, that the centre is reportedly thinking about introducing enhanced safety standards for cars. These should be made mandatory as soon as possible, so that Indian auto safety standards are in line with international norms. Such a move will encounter resistance from auto-makers. But if they can export cars which meet enhanced safety standards, why can't they do the same for the domestic market? The additional expense this might entail is well worth it. Road accidents are not just devastating in terms of fatalities. The economic cost imposed on survivors and society is prohibitive.

According to WHO, about 3% of GDP is lost on account of road traffic crashes. To put this in perspective, it is far more than India's defence spending or food subsidy. Therefore, enhancing costs a bit to add on safety features that mitigate the incidence of fatalities is the right way to proceed. However, improving India's record of road safety is not merely a question of adding safety features to cars. It requires a far bigger change. Our mental approach to safety needs to change. A look at the globe suggests that low income countries bear a disproportionate share of fatalities from road accidents. However, wealth is not what determines how many people die on roads. Japan and the US, two wealthy countries, have very different records. Japan has 5.2 road fatalities for every 1 lakh of people. A slightly wealthier US has more than two times Japan's fatality rate at 11.4. Japan shows how much it cares when its enforcement of preventing drunken driving– a frequent cause of accidents–is significantly better than India even though both countries have the same legal standard for blood alcohol concentration.

Enforcement needs to be complemented by other institutional changes, including better designed road features that make safety the primary objective. Road safety is a paramount public health issue and needs to be taken seriously. Thousands of road fatalities in India are preventable. Curbing them is as important as keeping India clean and probably easier to achieve. The fact remains that we have not taken road safety with due seriousness that this issue deserves. There is no dearth of technical knowhow in our country, which can be gainfully utilised to advice and also tackle this grave issue. What we lack is the political will in our country. All said and done, the safety of the people should be considered on priority in our country.

5. According to the passage, currently in India, road safety is considered
   (a) quite satisfactory
   (b) just about adequate
   (c) somewhat inadequate
   (d) grossly inadequate
6. Presently, auto-makers in India have not improved safety measures as
   (a) they are incapable of doing so
   (b) these are just not needed
   (c) the government has not directed them to do so
   (d) None of the above
7. Generally speaking, in poorer countries, road accidents are
   (a) quite low
   (b) lower than rich nations
   (c) higher than wealthy countries
   (d) None of the above
8. As per the passage, which of the following statements is not true?
   (a) Indian road safety standards are at par with international norms
   (b) Quite a few road accidents can be avoided
   (c) We need to enhance safety features in our cars
   (d) Fatality rate in Japan is lower than US

Passage III

Far from the glamorous, high octane world of banking, there is a little known, nonetheless outstanding story. It's about Equity Bank, a lender in Kenya. Equity was so cheesed off with telecom companies, which were refusing to share their network with the bank for mobile banking that the African bank did something which few have dared to do; it went ahead and took a telecom operators licence. Equity rolled out a service what the Modi government intends to offer in India. The institution used a fairly new technology– 'unstructured supplementary service data' (or USSD in trade parlance)–to enable its countrymen, mired in low incomes and poverty, to avail an inexpensive banking service with ordinary handsets.

A customer had to simply text simple alphanumeric messages to access his/her bank account and carry out virtually every transaction one does with a bank. No smart–phone, no android application, no internet access were required. Kenya and Bangladesh–another country where USSD has taken off may not come across as acceptable models for India which, as the tired cliche goes, is a tiger about to be uncaged. However, it may make sense to put in place a few things before this ancient animal is unleashed.

The powerful telecom lobby, represented by some of India's biggest business houses, had been resisting sharing their infrastructure that would allow USSD backed basic mobile banking services, connecting banks through a centralised payment gateway. Their argument was simple; they had bid for telecom licence to offer voice and data services and had no obligation to open up their infrastructure to all and sundry; besides, 10 paise per transaction was too low to charge. Things changed.

A stern Prime Minister brushed aside some of the arguments and the charge was raised to ₹1.50. The service pushed by the government backed National Payment Corporation of India – an entity that is desperately trying to take a toehold– will be formally launched by Modi as part of the Pradhan Mantri Jan Dhan Yojana, that is the government's national mission for financial inclusion. But like most things in India, the USSD will start on a half baked note. First, ₹1.50 per transaction is too high to charge. While it has helped telecom firms to grudgingly accept the terms. A meaningful impact from mobile banking and its spread would required the charge to be slashed closer to 50 paise.

Second, restricted access and a handful of basic banking transactions would narrow the scope. Every institution should have access to telecom infrastructure and all kinds of payments should be permitted. Individual users should be able to use basic mobile phones to sell mutual fund units, pre–pay personal loan, and even pay for groceries or flight cards using credit or debit cards. The technology allows all this. And if we are embracing the technology, why we do it half–heartedly? The PM, the babus and every stakeholder in the payments game must come together to drive a bargain with the telecom companies to make it happen. Putting up ATM machines in distant villages is not a step towards digitalisation. It's a headache for banks that run it and can be a pain for users who are not used to using a debit card and remembering the four–digit PIN.

A mobile phone is a cheaper, easier option towards a cashless economy. Anyone can use a mobile phone– it has multilingual keys and poses no hurdle to an illiterate person. But if digitalisation has to catch on, USSD backed mobile banking has to be taken out of the clutches of mobile companies. All the players should have the access and pay the same charge – just as a power utility does not discriminate between a grocer and a jeweller. The gates should be opened to everyone. Banks, NPCI, Visa, MasterCard, Micro–finance Institutions, Mutual Funds, Insurers, Telecom Companies– all should join the game. Even if a mobile company sponsors a payment bank, it should be directed to let others access its communication infrastructure at a reasonable price. Confining

USSD based mobile banking to a few services and to a few players will be a lip service to digitalisation and eventually financial inclusion.

9. As per the passage, the government is keen that
   (a) mobile banking should be available to all citizens at a reasonable price
   (b) mobile banking should be available to only those who can afford it
   (c) people should avail banking services using ATMs only
   (d) None of the above
10. USSD technology permits to access banking services using which of the following?
   (a) i-pad
   (b) Internet facilities
   (c) Android application
   (d) None of the above
11. In the recent past, telecom companies were
   (a) too keen to support mobile banking initiatives
   (b) quite against using their network to make mobile banking facilities available to citizens
   (c) not supportive to extend mobile banking to people
   (d) None of the above
12. As per the passage, which of the following is not true?
   (a) We should not allow only a select few to call the shots in mobile banking
   (b) Only Kenya is using USSD
   (c) USSD supported mobile banking should not depend on mobile companies
   (d) None of the above

Passage IV

The Indian retail market may have slipped to single digit revenue growth for the first time last year, but top global fashion brands bucked the trend by offering stylish designs to Indian consumers at affordable rates and discounts. International brands in the country– Zara, Marks and Spencer, Benetton and Tommy Hilfiger– all posted anywhere between 21% and 56% year–on–year jump in their revenues last fiscal according to their annual filings. And their base is not too low either. Sales of these four brands put together equal apparel section of department store chains Shoppers Stop and Lifestyle International that sell around a hundred brands and is more than half of Aditya Birla's Madura Fashion and Lifestyle that owns brands such as Louis Philippe, Van Heusen and Allen Solly.

Experts attribute the growth of global fashion brands to consumers moving towards marquee labels and international style as they become affordable and priced at par with premium Indian brands. Managing Director at Benetton India, said besides overall sales, the Italian brand has also seen a spike in average customer spend. "Apart from our Italian lineage of having hip and trendy styles, Benetton's basket and average ticket size also increased," he said. While Managing Director declined to comment on financial numbers, he said Benetton has identified opportunities in niche growth pockets such as airports and smaller towns to fuel growth. Last week, Marks and Spencer global Chief Executive had said the company's focus on quality and style will help it make India its largest international market outside its home market of the UK. Most of the growth of these international retailers was in same store sales as they hardly expanded their store count last year. For instance, Inditex Trent, which runs Zara in the country, grew its sales more than 56% despite not adding a single store. M and S Reliance opened just six outlets during the year while its sales reported 28% like-to-like growth.

Their impressive growth comes at a time when the overall retail sector in the country experienced an overall single digit revenue growth in 2012 for the fist time in its history, according to India ratings and research, formerly known as Fitch Ratings. India's retail garment market has over the past few years attracted a clutch of the world's largest private labels that are banking on the country's young consumers to spur Western wear business.

According to a 2012 report by Boston Consulting Group, consumption expenditure on apparel in the country is expected to increase 3.8 times to $225 billion, or about ₹14 lakh crore, over the next 7 to 8 years. The government had relaxed the rules to allow 100% Foreign Direct Investment (FDI) in single brand retail last year, spurring interest on the part of several global brands. The government approved Sweden-based Hennes and Mauritz's proposal to invest ₹720 crore to launch 50 stores in the country. Japan's Uniqlo and American retailer GAP too are in the process of finalising their India entry plans. Inditex, which owns Zara, too plans to bring its higher-end label Massimo Dutti to the country through a proposed joint venture.

13. According to the passage, which of the following factors has been responsible for encouraging international brands to enter Indian market?
   (a) Young Indians prefer these brands
   (b) Western wear garments are preferred by Indians
   (c) Government has recently allowed 100% FDI in single brand retail
   (d) All of the above
14. International retailers have done well in India, since they
   (a) have expanded their stores count tremendously
   (b) have made efforts to reach every nook and corner of India
   (c) realised that there was no need to open a large number of stores
   (d) None of the above
15. As per recent reports, consumption expenditure on clothes in India is likely to
   (a) decrease drastically in the next few years
   (b) remain constant for sometime
   (c) increase in the near future
   (d) show a marginal decline in the next few years
16. Which one of the following statements is not true?
   (a) Marks and Spencer plans to expand its market in India in a big way
   (b) Popular brands Allen Solly, Louis Philippe and Van Heusen are owned by Aditya Birla Group
   (c) Indian retail market has registered considerable growth in the recent past
   (d) None of the above

Passage V

A study commissioned by UN–Habitat's Global Urban Youth Research Network provided a startling piece of data. In less than 6 years from now, India would be the world's youngest country, with the median individual below 30 years of age. But more disturbingly it also highlighted disparities in the extent to which young people have been able to acquire formal skills – the largest share was found in Kerala, followed by Maharashtra, Tamil Nadu, Himachal Pradesh and Gujarat. The new government has recognised this imbalance, made provision for upgrading skills across multiple disciplines and allocated resources in geographically sensitive locations; from five technical research centres in nanotechnology to a Hastakala Academy for the

handicrafts sector; from five new IITs and five new IIMs to new institutes for farming and agrotechnology in Asom and Jharkhand. This resonates with what the National Skill Development Corporation and its partners are trying to achieve. What is somewhat less clear is how far the government is open to private partnership in this ambitious game plan? In a few specialised areas like nanotechnology, the budget speaks of public private partnership. But skill development on the massive scale envisaged by the new government cannot be attempted, let alone achieved, if we don't get out of the 'silo syndrome'– resist the temptation to corral broad policy like private participation in a few test tube verticals, perceived as high tech or experimental. It is no accident that the nation's largest pool of technical talent today, is centered around places like Bangalore, a state that pioneered privatisation of engineering education.

The record of Indian educational or vocational institutions in most global rankings is, however, worrisome; the world's youngest nation in 2020 may remain an index of quantity rather than quality. The existing institutions with a few exceptions are very much a part of the problem and not always the solution. There is a need to empower and enrich existing institutions– both public and private– instead of merely increasing their number. Standardisation, scalability and critical monitoring of industry requirements *versus* the turnout of such institutions must take precedence over rolling out institutions indiscriminately.

We need to be equally mindful that in order to leapfrog into the league of economically progressive economies, we need to shed the ideological baggage that sees all private participation as a bane. This is even more critical while addressing the gaping holes in infrastructure and an enabling ecosystem that a national thrust in skill development and employability demands. The budgets message here is somewhat mixed while the overarching objectives in the skilling sector are well articulated, some of the indirect tax proposals seem to mitigate against the swift realisation of these objectives the withdrawal of service tax exemptions on renting immovable property to an educational institutions the restriction on exemptions with regard to services received by those to changes in the Excise Duty on the manufacture of writing and printing paper for textbooks, will add to the financial burden of skill providers.

A little tweaking of these proposals will easily mitigate the impact and ensure that a framework involving all stakeholders in skill building becomes more evident. For the first time in decades, students, teachers, trainers and skill providers can see a clear, unclouded vision of what India needs to do to lift itself up by its own bootstraps and stride into the fiercely competitive global arena of opportunity. It is time to pick up the tools and get on with the job.

17. As per the passage, to promote skill development in our country, we need to
    (a) open a large number of institutions
    (b) reduce the number of existing institutions
    (c) infuse quality in the present institutions
    (d) take no action for the present
18. To become an economically progressive economy, we should
    (a) reduce private participation
    (b) encourage public participation
    (c) encourage private participation substantially
    (d) None of the above
19. Presently, the situation with regard to acquiring formal skills by young Indians is
    (a) fairly encouraging
    (b) just considered satisfactory
    (c) rather unsatisfactory
    (d) not deserving much attention by the government
20. Which one of the following statements is not true?
    (a) Indian institutions do not rank high on global standards
    (b) Presently, we have adequate participation by private corporates
    (c) Budgetary provisions do not outrightly encourage private participation in skill development
    (d) All of the above

DIRECTIONS (Qs. 21-23): *Rearrange the given jumbled word in each of these questions and select the word which is opposite in meaning to the rearranged word.*

21. ADRDSCI
    (a) humour (b) accept
    (c) honour (d) sharp
22. ALFEBUTIU
    (a) tall (b) ugly
    (c) selfish (d) coward
23. UWLPOERF
    (a) weak (b) short
    (c) capable (d) fit

DIRECTIONS (Qs. 24-26): *Fill in the blanks.*

24. During the fashion parade, the model wore an outfit which was.....and she looked really
    (a) modern, old (b) attractive, awkward
    (c) eye-catching, beautiful (d) colourful, dull
25 To do well in academics, a student need not be very brilliant but....., must be.
    (a) healthy, tall (b) good looking, talkative
    (c) clever, rich (d) intelligent, hardworking
26. Due to high inflation in the economy, the availability of goods has..... and the prices have gone..... .
    (a) reduced, high (b) increased, down
    (c) not changed, low (d) doubled, stable

DIRECTIONS (Qs. 27-30): *Choose the order of the sentences marked A, B, C, D and E to form a logical paragraph.*

27. A. Tasty and healthy food can help you bring out their best.
    B. One minute they are toddlers and next you see them in their next adventure.
    C. Your young ones seem to be growing so fast.
    D. Being their loving custodians, you always want to see them doing well.
    E. Their eyes sparkle with curiosity and endless questions on their tongues.

    Codes
    (a) DBCEA (b) CADEB
    (c) CBEDA (d) ECABD
28 A. Of course, the training was damn tough, both physically and mentally.
    B. But, once he became a fighter pilot in the Air Force, he was the happiest man going around.
    C. As a child, watching flying aircraft was a passion for him.
    D. So, he took the NDA exam to become a pilot in the Air Force.
    E. He thought flying was the best career for him.

Codes

(a) DCBAE (b) CEDAB
(c) BADEC (d) EACDB

29 A. It is hoping that overseas friends will bring in big money and lift the morale of the people.
B. But a lot needs to be done to kick start industrial revival.
C. People had big hopes from the new government.
D. So far government has only given an incremental push to existing policies and programmes.
E. Government is to go for big time reforms, which it promised.

Codes

(a) BCDAE (b) EADCB
(c) DABEC (d) CDEAB

30 A. However, women hiring is catching up at a slow and steady rate in the recent times.
B. Gender ratio has been inclined more towards male employees.
C. As a result, recent reports have highlighted the rise in demand for women employees.
D. Women constitute a little over half of world's total population.
E. But, their contribution to measured economic activity is far below the potential.

Codes

(a) DEBAC (b) CDAEB
(c) BCDEA (d) AEDBC

DIRECTIONS (Qs. 31-34): *In each of these questions, choose the option that best captures the essence of the text.*

31. Various studies have shown that our forested and hilly regions and, in general, areas where biodiversity– as reflected in the variety of flora– is high, are the places where poverty appears to be high. And these same areas are also the ones where educational performances seem to be poor. Therefore, it may be surmised that, even disregarding poverty status, richness in biodiversity goes hand in hand with educational backwardness.
(a) In regions where there is little variety in flora, educational performance is seen to be as good as in regions with high variety in flora, when poverty levels are high
(b) Regions which show high biodiversity, also exhibit poor educational performance, at low level of poverty
(c) Regions which show high biodiversity reveal high levels of poverty and poor educational performance
(d) In regions where there is low biodiversity, at all levels of poverty, educational performance is seen to be good

32. Local communities have often come in conflict with agents trying to exploit resources, at a faster pace, for an expanding commercial-industrial economy. More often than not, such agents of resource intensification are given preferential treatment by the state, through the grant of generous long leases over mineral or fish stocks, e.g. the provision of raw material at an enormously subsidised price. With the injustice so compounded, local communities at the receiving end of this process, have no recourse except direct action, resisting both the state and outside exploiters through a variety of protest techniques. These struggles might perhaps be seen as a manifestation of a new kind of class conflict.
(a) A new kind of class conflict arises from preferential treatment given to agents of resource intensification by the state, which the local community sees as unfair
(b) The grant of long leases to agents of resource intensification for an expanding commercial industrial economy leads to direct protests from the local community, which sees it as unfair
(c) Preferential treatment given by the state to agents of resource intensification for an expanding commercial industrial economy exacerbates injustice to local communities and leads to direct protests from them, resulting in a new type of class conflict
(d) Local communities have no option but to protest against agents of resource intensification and create a new type of class conflict when they are given raw material at subsidised prices for an expanding commercial industrial economy

33. You seemed at first to take no notice of your school fellows, or rather to set yourself against them because they were strangers to you. They knew as little of you as you did of them; this would have been the reason for their keeping aloof from you as well, which you would have felt as a hardship. Learn never to conceive a prejudice against others because you know nothing of them. It is bad reasoning and makes enemies of half the world. Do not think ill of them till they behave ill to you; and then strive to avoid the faults which you see in them. This will disarm their hostility sooner than pique or resentment or complaint.
(a) The discomfort you felt with your school fellows was because both sides knew little of each other. You should not complain unless you find others prejudiced against you and have attempted to carefully analyse the faults you have observed in them
(b) The discomfort you felt with your school fellows was because both sides knew little of each other. Avoid prejudice and negative thoughts till you encounter bad behaviour from others and then win them over by shunning the faults you have observed
(c) You encountered hardship amongst your school fellows because you did not know them well. You should learn to not make enemies because of your prejudices irrespective of their behaviour towards you
(d) You encountered hardship amongst your school fellows because you did not know them well. You should learn to not make enemies because of your prejudices unless they behave badly with you

34. Although almost all climate scientists agree that the Earth is gradually warming, they have long been of two minds about the process of rapid climate shifts within larger periods of change. Some have speculated that the process works like a giant oven or freezer, warming or cooling the whole planet at the same time. Others think that shifts occur on opposing schedules in the Northern and Southern hemispheres, like exaggerated seasons. Recent research in Germany examining climate patterns in the Southern hemisphere at the end of the last Ice Age strengthens the idea that warming and cooling occurs at alternate times in the two hemispheres. A more definitive answer to this debate will allow scientists to better predict when and how quickly the next climate shift will happen.

(a) Scientists have been unsure whether rapid shifts in the Earth's climate happen all at once or on opposing schedules in different hemispheres; research will help find a definitive answer and better predict climate shifts in future

(b) Scientists have been unsure whether rapid shifts in the Earth's climate happen all at once or on opposing schedules in different hemispheres; finding a definitive answer will help them better predict climate shifts in future

(c) Research in Germany will help scientists find a definitive answer about warming and cooling of the Earth and predict climate shifts in the future in a better manner

(d) More research rather than debates on warming or cooling of the Earth and exaggerated seasons in its hemispheres will help scientists in Germany predict climate changes better in future

DIRECTIONS (Qs. 35-37): *Rearrange the jumbled alphabets in the following four options and find the odd word among them.*

35. (a) LOSHCO (b) LEGELOC
(c) EHOSR (d) RYITUVESNI

36. (a) OESUH (b) DUGNIBIL
(c) INAMSON (d) SASIRU

37. (a) AKENCLCE (b) NILO
(c) LAEBNG (d) EEABRCLT

DIRECTIONS (Q. 38-40): *Identify the best way of writing the sentences in the context of the correct usage of standard written English.*

38. (a) Last year, government servants protested the government's decision of increasing their working hours
(b) Last year, government servants protested for the government's decision of increasing their working hours
(c) Last year, government servants protested at the government's decision of increasing their working hours
(d) Last year, government servants protested against the government's decision of increasing their working hours

39. (a) It has been established that the Earth is revolving around the Sun
(b) It has been established that the Earth revolved around the Sun
(c) It has been established that the Earth has been revolving around the Sun
(d) It has been established that the Earth revolves around the Sun

40. (a) It is a known fact that even death cannot be had after the asking
(b) It is a known fact that even death cannot be had for the asking
(c) It is a known fact that even death cannot be had on the asking
(d) It is a known fact that even death cannot be had about the asking

SECTION-B : Intelligence & Critical Reasoning

DIRECTION (Q. 41-44) : *In each of these questions, a statement is followed by two Conclusions I and II. Consider the statement and the following conclusions. Decide which of the conclusions follows from the statement.*

Give answer

(a) if Conclusion I follows
(b) if Conclusion II follows
(c) if neither Conclusion I nor II follows
(d) if both Conclusions I and II follow

41. **Statement :** Parents are prepared to pay any price for anelite education to their children.
Conclusions : I. All parents these days are very well off.
II. Parents have an obsessive passion for a perfect development of their children through good schooling.

42. **Statement** The use of non-conventional sources of energy will eliminate the energy crisis in the world.
Conclusions : I. Modern technology is gradually replacing the conventional sources of energy.
II. The excessive exploitation of environment has led to depletion of conventional sources of energy.

43. **Statement :** Any student who does not behave properly while in the school brings bad name to himself and also for the school.
Conclusions : I. Such student should be removed from the school.
II. Strict discipline does not improve behaviour of the students.

44. **Statement:** Quality has a price tag. India is allocating lots of funds to education.
Conclusions : I. Quality of education in India would improve soon.
II. Funding alone can enhance quality of education.

DIRECTIONS (Qs. 45-48) : *Each of these questions has an assertion (A) and a reason (R).*

Mark answer

(a) if both A and R are true and R is the correct explanation of A
(b) if both A and R are true but R is not the correct explanation of A
(c) if A is true but R is false
(d) if A is false but R is true

45. **Assertion (A)** India is a democratic country.
Reason (R) India has a Constitution of its own.

46. **Assertion (A)** Most of the ancient civilisations grew near the rivers.
Reason (R) The main occupation of man was agriculture.

47. **Assertion (A)** Goitre is a common disease in mountainous regions.
Reason (R) The diet of the people in mountains lacks iodine content.

48. **Assertion (A)** For the production of aluminium, cheap electricity is essential.
Reason (R) Extraction of aluminium from its ore requires abundant supply of electricity.

DIRECTIONS (Qs. 49-52) : *In each of these questions, two Statements I and II are provided. These may have a cause and effect relationship or may have independent causes or be the effects or independent causes. Read the statements carefully and answer the questions given below.*

Mark Answer as

(a) if the Statement I is the cause and Statement II is its effect

(b) if the Statement II is the cause and Statement I is its effect

(c) if both the Statements I and II are effects of independent causes

(d) if both the Statements are effects of some common cause

49. **Statement I** The university authority has instructed all the colleges under its jurisdiction to ban use of all phones inside the college premises.
Statement II Majority of the teachers of the colleges signed a joint petition to the university complaining the disturbances caused by cell phone ringtones inside the classrooms.

50. **Statement I** The literacy rate in the district has been increasing for the last four years.
Satement II The district administration has conducted extensive training programme for the workers involved in the literacy drive.

51. **Statement I** Rural and semi-urban areas in the country have been suffering due to load shedding for quite some time.
Statement II If the government is not able to overcome the power crisis, load shedding will be extended even to the urban areas.

52. **Statement I** The government has imported large quantities of sugar as per the trade agreement with other countries.
Statement II The prices of sugar in the domestic market have fallen sharply in the recent months.

DIRECTIONS (Qs. 53-55) : *Answer these questions based on the information given below.*

Hansraj College, Delhi is selecting a four person debate team. There are seven candidates of equal ability. X, Y and Z who attended the science block courses and L, M, N and P who attended the commerce block courses. The team must have two members from each block. Also, the members must be able to work well with all the other members of the team. Note that debaters Y and L, Z and N, and L and M are incompatible pairs.

53. If debater Y is rejected and M is selected, the team will consist of
(a) L, M, X and Z (b) M, N, X and Z
(c) M, N, P and X (d) M, P, X and Z

54. If debater L is in the team, what other debaters must be in the team as well?
(a) M, X and Z (b) P, X and Z
(c) N, X and Z (d) P, N and Z

55. If both Y and Z are selected, which of the other debaters are thereby assured of a place in the team?
(a) L and M (b) M and P
(c) Only N (d) N and P

DIRECTIONS (Qs. 56-58) : *Answer these questions based on the information given below.*

E, F, G, H, I and J are sitting around a circle facing at the centre. E, who is to the immediate left of H is not the neighbour of G. I, the neighbour of G is not the neighbour of F. J is between H and F.

56. Which of the following is true?
(a) E is to the immediate right of I
(b) I is between G and F
(c) H is between E and G
(d) None of the above

57. What is the position of I?
(a) Between G and F (b) Between E and G
(c) Neighbour of H (d) None of the above

58. 'Which of the following is false?
(a) I is second to the left of H
(b) G is third to the right of H
(c) J is second to the left of G
(d) None of the above

DIRECTIONS (Qs. 59-61) : *Answer these questions based on the information given below.*

Five courses - A, B, C, D and E each of one month duration are to be taught from January to May one after the other though not necessarily in the same order by lecturers P, Q, R, S and T. P teaches course 'B' but not in the month of April or May. Q teaches course 'A' in the month of March. R teaches in the month of January, but does not each course 'C' or 'D'

59. Which course is taught by S?
(a) A (b) E
(c) Either C or D (d) B

60. Which lecturer's course immediately follows after course B?
(a) Q (b) P
(c) S (d) T

61. Which course is taught in the month of January?
(a) C (b) D
(c) E (d) Data inadequate

DIRECTIONS (Qs. 62-64) : *Answer these questions based on the information given below.*

Six friends A, B, C, D, E and F are sitting along the sides of a hexagonal table for playing a game, though not necessarily in the same order. F, who is sitting exactly opposite to A, is to the immediate right of B. D is between A and B and is exactly opposite to C.

62. A is sitting between which of the following pairs of persons?
(a) D and E (b) B and E
(c) E and C (d) None of these

63. Who is sitting opposite to B?
(a) F (b) E
(c) A (d) C

64. Three of the following pairs are alike in a certain way on the basis of sitting positions and so form a group. Which is the pair that does not belong to the group?
(a) B and E (b) A and D
(c) B and D (d) E and A

DIRECTIONS (Qs. 65-67) : *Answer these questions based on the information given below.*

A wooden cuboid of dimensions $9 \times 7 \times 5$ unit is painted in a fixed pattern. The two opposite faces are painted in red. The other two opposite faces are painted in green. The remaining top and bottom faces are painted in blue.

The cuboid is cut into 315 small cubes.

65. How many cubes have all the three faces coloured?
(a) 8 (b) 32
(c) 24 (d) None of these

66. How many cubes have two faces coloured?
(a) 142 (b) 60
(c) 105 (d) None of these

67. How many cubes have one face coloured?
(a) 105 (b) 71
(c) 142 (d) None of these

DIRECTIONS (Qs. 68-71) : *Complete the series by replacing '?' mark.*

68. P3C, R5F, T8I, V12L, ?
(a) Y170 (b) X17M
(c) X170 (d) X160

69. G4T, J9R, M20P, P43N, S90L, ?
(a) S90L (b) V185J
(c) M20P (d) P43N

70. 2Z5, 7Y7, 14X9, 23W11, 34V13, ?
(a) 27U24 (b) 4U15
(c) 47U15 (d) 47V14

71. 0, 2, 3, 5, 8, 10, 15, 17, 24, 26 ?
(a) 28 (b) 30
(c) 32 (d) 35

72. A direction pole was situated on the crossing. Due to an accident the pole turned in such a manner that the pointer which was showing East, started showing South. One traveller went to the wrong direction thinking it to be West. In what direction actually he was travelling?
(a) North (b) South
(c) East (d) West

73. Neeraj starts walking towards South. After walking 15 m, he turns towards North. After walking 20 m, he turns towards East and walks 10 m. He then turns towards South and walks 5 m. How far is he from his original position and in which direction?
(a) 10 m, East
(b) 10 m, South-East
(c) 10 m, West
(d) 10 m, North-East

74. The ratio of the ages of the father and the son at present is 5:1. After 10 yr the ratio will become 3 :1. What is the sum of the present ages of the father and the son?
(a) 30 yr (b) 32 yr
(c) 60 yr (d) None of these

75. The average age of 8 men is increased by 2 yr when one of them whose age is 20 yr is replaced by a new man. What is the age of the new man?
(a) 28 yr (b) 36 yr
(c) 34 yr (d) 35 yr

76. Thirteen students are standing in horizontal row from left to right. If all the odd numbered students in the row are shifted to successive odd numbered positions, what will be the position of Sahil who was 7th in the row initially?
(a) 9th from right (b) 6th from left
(c) 5th from right (d) 8th from left

77. In the following number series how many such 7's are there which are immediately preceded by a pair of numbers whose product is more than the product of pair of numbers immediately following 7?
2 2 7 1 3 9 4 8 7 6 5 4 2 8 3 5 7 4 6 5 9 7 8 6 4 3 9 7 4 6 5
(a) 1 (b) 4
(c) 2 (d) 3

78. If Neena says, "Anita's father Raman is the only son of my father-in-law Mahipal", then how is Bindu, who is the sister of Anita, related to Mahipal?
(a) Niece (b) Daughter
(c) Daughter-in-law (d) None of these

79. Shikha is mother-in-law of Ekta who is sister-in-law of Ankit. Pankaj is father of Sanjay, the only brother of Ankit. How is Shikha related to Ankit?
(a) Mother-in-law (b) Aunt
(c) Wife (d) Mother

80. In a code language, 'mok dan sil' means 'nice big house', 'fit kon dan' means 'house is good' and 'warm tir fit' means 'cost is high'. Which word stands for 'good' in that language?
(a) mok (b) dan
(c) fit (d) kon

SECTION-C : Mathematical Skills

81. A sum of ₹10000 amounts to ₹12000 in 5 yr at a certain rate percent at compound interest. Find what will be the amount in 20 yr at the same rate of compound interest?
(a) ₹18000 (b) ₹16000
(c) ₹20000 (d) None of these

82. A sum of money amounts to ₹944 in 3 yr at simple interest. If the rate of interest be raised by 25%, the sum amounts to 980 during the same period. Find the sum and the rate of interest.
(a) ₹800 and 5% (b) ₹900 and 6%
(c) ₹800 and 6% (d) ₹850 amd $7\frac{1}{2}\%$

83. There are some shepherds and their sheep are in a grazing field. The number of total heads are 60 and total legs are 168 including both men and sheep. The number of sheep is
(a) 18 (b) 26
(c) 24 (d) 36

84. In a class of 30 students, the average weight of boys is 20 kg and the average weight of the girls is 25 kg. The fraction of boys out of the total students of the class is
(a) $\frac{4}{5}$ (b) $\frac{5}{6}$
(c) $\frac{3}{4}$ (d) Data insufficient

85. A milkman sells the milk at the cost price, but he mixes the water in it and thus he gains 9.09%. The quantity of water in the mixture of 1 L milk is
(a) 83.33 mL (b) 90.90 mL
(c) 90.09 mL (d) None of these

86. The average marks of the students in four sections A, B, C and D together are 60%. The average marks of the students of A, B, C and D individually are 45%, 50%, 72% and 80%, respectively. If the average marks of the students of sections A and B together are 48% and that of the students of B and C together are 60%. What is the ratio of number of students in sections A and D?
(a) 2 : 3 (b) 4 : 3
(c) 5 : 3 (d) 3 : 5

87. Two persons A and B throw a coin alternatively till one of them gets head and wins the game. Find their respective probabilities of winning.

(a) $\frac{1}{3}, \frac{5}{6}$ (b) $\frac{3}{5}, \frac{4}{5}$

(c) $\frac{2}{3}, \frac{1}{3}$ (d) $\frac{1}{6}, \frac{5}{6}$

88. The probability that A hits a target is $\frac{1}{3}$ and the probability that B hits it is $\frac{2}{5}$. What is the probability that the target will be hit, if each one of A and B shoots the target.

(a) $\frac{5}{6}$ (b) $\frac{3}{5}$

(c) $\frac{11}{15}$ (d) $\frac{1}{6}$

89. A bag contains 4 red and 3 black balls. A second bag contains 2 red and 4 black balls. One bag is selected at random. From the selected bag, one ball is drawn. Find the probability that the ball drawn is red.

(a) $\frac{23}{42}$ (b) $\frac{19}{42}$

(c) $\frac{7}{32}$ (d) $\frac{16}{39}$

90. A card from a pack of 52 cards is lost. From the remaining cards of pack, two cards are drawn and are found to be both diamonds. Find the probability of the lost card being diamond.

(a) $\frac{39}{50}$ (b) $\frac{11}{50}$

(c) $\frac{23}{25}$ (d) $\frac{3}{26}$

91. Ashok and Amit started a business with investment of ₹5 lakh and ₹4 lakh. Amit runs the business and gets $\frac{1}{5}$ of profit as salary on which he pays 10% tax. If they are with the same amount of profit finally, total profit earned is

(a) ₹30000 (b) ₹50000

(c) ₹80000 (d) Cannot be determined

92. A, B and C start a business. Profit earned by A is 10% more than B and profit earned by B is 15% less than C. The ratio of their investment is

(a 178 : 170 : 200 (b 187 : 170 : 200

(c) 180 : 162 : 190 (d) 163 : 175 : 190

93. A and B can do a work in 10 days, B and C in 15 days and A and C in 12 days. In how many days the work will be finished by A, B and C working together?

(a) 6 (b) 7

(c) 8 (d) 9

94. A man can do a work in 20 days and a woman can do it in 30 days. 5 men worked for 2 days and left the work. How many women are needed to finish the work next day?

(a) 18 (b) 15

(c) 14 (d) 12

95. Manoj is to reach Chandigarh from Delhi, which is 300 km away. Half of the distance, he covers with a speed of 60 km/h and travels for 30 min with a speed of 50 km/h. What should be his speed for rest of the distance to reach Chandigarh in 4.5 h?

(a) 75 km/h (b) $\frac{200}{3}$ km/h

(c) $\frac{250}{3}$ km/h (d) $\frac{400}{3}$ km/h

96. Mukesh drives car A with a speed of 60 km/h on Monday, Wednesday and Friday covering a distance of 70 km to his office. He drives car B with speed of 50 km/h on Tuesday and Thursday covering the same distance. What is his average speed for the week?

(a) 55 km/h (b) 60 km/h

(c) $\frac{3500}{63}$ km/h (d) $\frac{3700}{63}$ km/h

97. A tank is filled by pipe A in 20 min and pipe B in 30 min. Pipe C can empty it in 45 min in full tank C is opened for 30 min, then pipe A and B are also opened. The tank will be full in.....capprox min.

(a) 15 (b) 8

(c) 12 (d) 10

98. Pipe A is opened to fill a tank and tank is $\frac{4}{5}$ full in 3 h. Pipe C is opened and in 5 h, tank is 20% full. Now, pipe A is closed, the tank will be empty in.....h(s).

(a) $\frac{20}{29}$ (b) $\frac{25}{29}$

(c) 1 (d) $\frac{15}{29}$

99. If $x : 4 = 3y : 5 = -z : 3 = 3x - 6y - 4z : k$, then value of k is

(a) 8 (b) 10

(c) 12 (d) 14

100. A certain sum of money is divided among A, B and C, so that for each rupee of A, B has 65 paise and C has 35 paise. If S's share is ₹1300, then total sum of money is

(a) ₹7000 (b) ₹6000

(c) ₹5000 (d) ₹4000

101. The incomes of X, Y and Z are in the ratio 5:7:9 and their expenditures are in the ratio 6 : 7 : 12. If X saves 30% of his income, then what is the ratio of their savings?

(a) 24 : 18 : 35 (b) 18 : 35 : 24

(c) 24 : 35 : 18 (d) 18 : 24 : 35

102. The marks scored by Rahul in English, Mathematics and Science are in the ratio $\frac{1}{3} : \frac{1}{4} : \frac{1}{5}$. If his total score is 705, then his marks in Mathematics are

(a) 180 (b) 200

(c) 225 (d) 300

103. There are only two candidates contesting the election. A person who got 47% of votes lost by 540 votes. Assuming that there were no invalid votes, the total number of votes casted were

(a) 7000 (b) 8000

(c) 9000 (d) 10000

104. In a class, 55% of the students are girls. On Monday, 80% of boy students 'are present. If a total of 70% students were present that day, then the percentage of girls present is
(a) 45% (b) 44%
(c) 35% (d) 34%

105. In an examination, 40% of students failed in Maths, 30% failed in English and 10% failed in both. Then, the percentage of students who passed in both is
(a) 40% (b) 50%
(c) 60% (D) 30%

106. If one side of the rectangle is increased by 25% and the other side is increased by 8%, then find by what perent area of rectangle will change?
(a) 25% (b) 30%
(c) 35% (d) 40%

107. A can do a work in 20 days and B can do it in 10 days. A starts the work and works alone for 5 days. Then, B joins A and they finish the work. In how many days, the work gets finished?
(a) 10 (b) 12
(c) 9 (d) 8

108. 10 men can do a work in 10 days working 10 h a day. In how many days, the work will be done by 20 men working 5 h a day?
(a) 5 (b) 8
(c) 10 (d) 12

109. A car travels half of the distance with speed 40 km/h and half with speed 60 km/h in journey of 5 h. What is the distance covered by the car?
(a) 240 km (b) 150 km
(c) 100 km (d) 180 km

110. A car starts with a speed of 20 km/h and increases its speed by 10 km/h after every hour. Another car has a constant speed of 50 km/h. In how much time, both the cars cover equal distance?
(a) 4 h (b) 5 h
(c) 6 h (d) 7 h

111. Pipes A and B can fill a tank in ft 10 h, B and C can fill it in 12 h and A and C can fill it in 8 h. Pipe B alone can fill it in.....h.
(a) 18 (b) 15
(c) $\frac{120}{7}$ (d) $\frac{240}{7}$

112. Pipe A can fill a tank in 30 min, B and C can fill in 90 min; A and B in 20 min. Pipe C can empty it in min.
(a) 150 (b) 180
(c) 210 (d) 240

113. A, B and C receive ₹10000, ₹12000 and ₹16000 as profit on total investment of ₹200000. What is the difference in investment by C, A and B together?
(a) ₹37951 (b) ₹35000
(c) ₹39751 (d) ₹31579

114. Rakesh gives ₹140000 to Ramesh for a business. Ramesh spends $\frac{1}{8}$ of his profit on rent of shop. If they are left with equal amount, then what is the investment of Ramesh?
(a) ₹160000 (b) ₹150000
(c) ₹170000 (d) ₹180000

115. A right circular cone, a right circular cylinder and a hemisphere, all have the same radius and the heights of cone and cylinder are equal to their diameters. Then, their volumes are proportional, respectively to
(a) 1:3:1 (b) 2:1:3
(c) 3 :2 :1 (d) 1:2:3

116. The sides of a triangle are 5 cm, 12 cm and 13 cm, respectively. A rectangle is constructed which is equal in area to the triangle and has a width of 10 cm. Then, the perimeter of the rectangle is
(a) 30 cm (b) 26 cm
(c) 13 cm (d) None of these

117. In a rectangle, the difference between the sum of the adjacent sides and the diagonal is half the length of the longer side. What is the ratio of the shorter to the longer side?
(a) $\sqrt{3}:2$ (b) $1:\sqrt{3}$
(c) $2:\sqrt{5}$ (d) 3 :4

118. Instead of walking along two adjacent sides of a rectangular field, a boy took a short cut along the diagonal and saved a distance equal to half the longer side. Then, the ratio of the shorter side to the longer side is
(a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{4}$ (d) $\frac{3}{4}$

119. A certain sum of money amounts to ₹6600 in 4 yr at a certain rate percent simple interest. If the rate of interest be increased by its 25%, the same sum would amount to ₹7000 during the same period. Find the sum.
(a) ₹6000 (b) ₹5500
(c) ₹5000 (d) ₹7000

120. What annual payment will discharge a debt of ₹4130 due 7yr hence, money being worth 6% per annum simple interest?
(a) ₹ 500 (b) ₹ 550
(c) ₹ 532 (d) ₹ 638

SECTION-D : Data Analysis & Sufficiency

DIRECTIONS (Qs. 121-126) : *In each of these questions, two quantities are given, one in column A and one in columh B. Compare the two quantities.*

Give answer
(a) if the quantity in column A is greater than the quantity in column B
(b) if the quantity in column B is greater than the quantity in column A
(c) if the quantities in column A and in column B are equal
(d) if the comparison cannot be made from the given information

121. 19 years from now, Thomas will be three times as old as Tim is now. Tom is 3 years younger than Thomas.
(a) Tom's age now. B. Tim's age now.

122. Last week Mohit received ₹ 10 in commission for selling 100 copies of a magazine. Last week Manish sold 100 copies of this magazine. He received his salary of ₹ 5 per week plus a commission of 2 paise for each of the first 25 copies sold, 3 paise for each next 25 copies and 4 paise for each copy sold thereafter.
A. Mohit's commission in the last week.
B. Manish's total income for last week.

123. In a leap year, there are 366 days whereas in a non-leap year, there are 365 days.
A. The probability of encountering 54 Tuesdays in a leap year.
B. The probability of encountering 53 Tuesdays in a non–leap year.

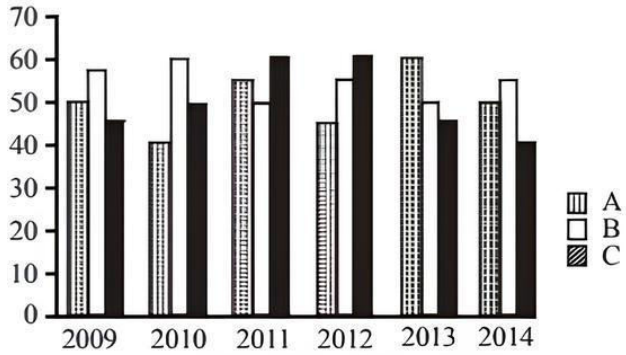
124. Amit has sold a book at a profit of 20% which cost him ₹ 56.25. Rita has sold a book at a loss of 5% which cost her ₹ 80.40.
A. The selling price of book which Amit sold.
B. The selling price of book which Rita sold.

125. If 5 people are transferred from Z to Y, further 5 more people are transferred from Y to X, then 5 are transferred from X to Y and finally, 5 more are transferred from Y to Z.
A. The maximum possible average of class Y.
B. The maximum possible average of class X.

126. A. Area of square with side 1.8 m.
B. Area of a circle with diameter 2 cm.

DIRECTIONS (Qs. 127-131) : *Study the following graph carefully to answer these questions.*

Production of paper (in lakh tonnes) by three different companies A, B and C over the years



127. What is the difference between the production of company C in 2009 and the production of company A in 2014?
(a) 5000000 tonnes
(b) 50000000 tonnes
(c) 50000 tonnes
(d) 500000 tonnes

128. What is the percentage increase in production of company A from 2010 to 2011?
(a) 35 (b) 38.25
(c) 37.5 (d) 36

129. For which of the following years was the percentage of rise/fall in production from the previous year the maximum for company B?
(a) 2014
(b) 2011
(c) 2010
(d) 2013

130. The total production of company C in 2011 and 2012 is what percentage of the total production of company A in 2009 and 2010?
(a) 110 (b) 90
(c) 95 (d) None of these

131. What is the difference between the average production per year of the company with the highest average production and that of the company with the lowest average production in lakh tonnes?
(a) 4.17 (b) 4.33
(c) 3.17 (d) 3.33

DIRECTIONS (Qs. 132-136) : *These questions are based on the table below.*

Year	Rural		Semi-urban		State Capitals		Metropolises	
	App	Pass	App	Pass	App	Pass	App	Pass
2009	1652	208	7894	2513	5054	1468	9538	3214
2010	1839	317	8562	2933	7164	3248	10158	4018
2011	2153	932	8139	2468	8258	3159	9695	3038
2012	5032	1798	9432	3528	8529	3628	11247	5158
2013	4915	1668	9784	4015	9015	4311	12518	6328
2014	5628	2392	9969	4263	10725	4526	13624	6449

132. For the candidates from which of the following locations was there continuous increase both in appeared and passed?
(a) State capital and rural (b) State capital
(c) Semi-urban (d) None of the above

133. In which of the following years was the percentage passed to appeared candidates from semi-urban area the least?
(a) 2009 (b) 2012
(c) 2010 (d) 2011

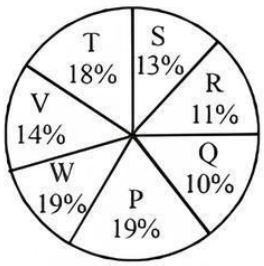
134. What approximate value was the percentage drop in the number of semi-urban candidates appeared from 2010 to 2011?
(a) 15 (b) 10 (c) 5 (d) 8

135. In 2012, percentage of candidates passed to appeared was approximately 35 from which location?
(a) Semi-urban and metropolises
(b) Rural and metropolises
(c) Rural
(d) None of the above

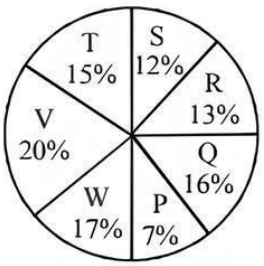
136. The total number of candidates passed from rural in 2012 and semi-urban in 2009 was exactly equal to the total number of candidates passed from state capital in which of the following years?
(a) 2013 (b) 2012
(c) 2009 (d) 2011

DIRECTIONS (Qs. 137-141) : *The following piecharts show the distribution of students of graduate and post–graduate levels in seven different institutes namely P, Q, R, S, T, V and W.*

Total Number of Students of Graduate Level = 25400

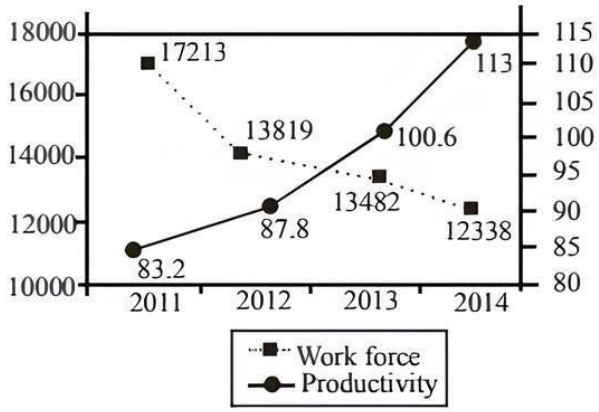


Total Number of Students of Post-Graduate Level = 18600



137. How many students of institutes *P* and *W* are studying at graduate level?
(a) 7486 (b) 8636
(c) 9046 (d) 9256
138. Total number of students studying at postgraduate level from institutes *T* and *V* is
(a) 6070 (b) 6890
(c) 6510 (d) 6230
139. What is the total number of students studying at postgraduate and graduate levels in institute *S*?
(a) 5534 (b) 5084
(c) 5764 (d) 5246
140. What is the nearest ratio between the number of students studying at postgraduate and graduate levels in institute *R*?
(a) 6 : 7 (b) 3 : 4
(c) 4 : 5 (d) 13 : 15
141. What is the nearest ratio between the number of students studying at postgraduate level in institute V and graduate level in institute T.
(a) 8 : 9 (b) 4 : 5
(c) 6 : 7 (d) 3 : 4

DIRECTIONS (Qs. 142-144) : *Study the line graph below to answer these questions.*



142. By how much percentage has production changed (approximately) in 2014 as compared to its value for 2011?
(a) 0% (b) +5%
(c) –3% (d) +7%
143. The percentage change in which of the mentioned areas is the highest over the period 2011-2014?
(a) Workforce (b) Productivity
(c) Production (d) Both (a) and (b)
144. Which two variables have moved in the same direction in the mentioned period?
(a) Production and productivity
(b) Workforce and production
(c) Workforce and productivity
(d) None of the above

DIRECTION (Qs. 145-150) : *Each of these questions has a problem and two statements numbered I and II giving certain information. Decide if the information given in the statements is sufficient for answering the problem.*

Given answer
(a) if the data in Statement I alone is sufficient to answer the question, while the data in Statement II alone is not sufficient to answer the question
(b) if the data in Statement II alone is sufficient to answer the question, while the data in Statement I alone is not sufficient to answer the question
(c) if the data even in both the Statements I and II together are not sufficient to answer the question
(d) if the data in both the Statements I and II together are necessary to answer the question

145. What is the speed of the train whose length is 210 m?
I. The train crosses another train of 300 m length running in opposite direction in 10 s.
II. The train crosses another train running in the same direction at the speed of 60 km/h in 30 s.
146. There were 54 members of a cooperative society. How many members attended the recent Annual General Meeting (AGM)?
I. Normally two-third members attend the meeting.
II. One-sixth of the members were out of the town on AGM's day.
147. Is cigarette smoking injurious to health?
I. Non-smokers have a longer life-span.
II. The incidence of heart attacks is more in smokers.
148. Does television viewing affect the performance of students?
I. The number of failures in Class XII is more this year.
II. Television watching is harmful to the eyes.
149. When will the prices of the air coolers be the lowest?
I. From July till January end companies offer 15% off-season discount.
II. During November, the prices will be 20% less than off-season and 30% less than February to June.
150. Can a democratic system operate without effective opposition?
I. The opposition is indispensable.
II. A good statesman always learns more from his opponents than from his fervent supporters.

DIRECTIONS (Qs. 151-155) : *Study the following table carefully to answer these questions.*

Expenditure of a company (in lakh rupees) per annum over the given years

Items of Expenditure /Years	Salary	Fuel and Transport	Bonus	Interest on loans	Taxes
2009	288	90	3.00	23.4	83
2010	342	112	2.52	32.5	108
2011	324	101	3.84	41.6	74
2012	336	133	3.68	36.4	88
2013	420	142	3.96	49.4	98

151. The ratio between the total expenditure on taxes for all the years and the total expenditure on fuel and transport for all the year respectively, is approximately
(a) 15 : 18 (b) 10 : 13
(c) 4 : 7 (d) 5 : 8

152. The total expenditure of the company over these items during the year 2011 is
(a) ₹ 446.46 lakh (b) ₹ 501.11 lakh
(c) ₹ 544.44 lakh (d) ₹ 478.87 lakh

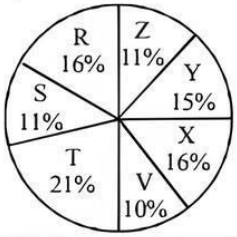
153. What is the average amount of interest per year which the company had to pay during this period?
(a) ₹ 34.18 lakh (b) ₹ 33.72 lakh
(c) ₹ 32.43 lakh (d) ₹ 36.66 lakh

154. Total expenditure on all these items in 2009 was approximately what percent of the total expenditure in 2013?
(a) 69% (b) 66%
(c) 62% (d) 71%

155. The total amount of bonus paid by the company during the given period is approximately what percent of the total amount of salary paid during this period?
(a) 1% (b) 0.5%
(c) 0.1% (d) 1.25%

DIRECTIONS (Qs. 156-160) : *Study the following piechart and the table to answer these questions.*

Proportion of population of seven villages in 2012



Villages	% Population below poverty line
X	38
Y	52
Z	42
R	51
S	49
T	46
V	58

156. Find the population of village S, if the population of village X below poverty line in 2012 is 12160.
(a) 22000 (b) 20500
(c) 18500 (d) 26000

157. The ratio of population of village T below poverty line to that of village Z below poverty line in 2012 is
(a) 23 : 11 (b) 13 : 11
(c) 11 : 23 (d) 11 : 13

158. If the population of village R in 2012 is 32000, then what will be the population of village Y below poverty line in that year?
(a) 16500 (b) 15600
(c) 14100 (d) 17000

159. If in 2013, the population of villages Y and V increase by 10% each and the percentage of population below poverty line remains unchanged for all the villages, then find the population of village V below poverty line in 2013, given that the population of village Y in 2012 was 30000.
(a) 13140 (b) 12760
(c) 11250 (d) 13780

160. If in 2014, the population of village R increases by 10% while that of village Z reduces by 5% compared to that in 2012 and the percentage of population below poverty line remains unchanged for all the villages, then find the approximate ratio of population of village R below poverty line to the of population of village Z below poverty line for the year 2014.
(a) 4 : 3 (b) 3 : 2
(c) 2 : 1 (d) 5 : 4

SECTION-E : Indian & Global Environment

161. Rosneft, which struck oil and gas deals with India recently, is the top oil producer of
(a) China (b) Iran
(c) Iraq (d) Russia

162. Ajaypal Singh Banga, the President and Chief Executive Officer is associated with
(a) Citi Bank (b) MasterCard
(c) Yes Bank (d) Google

163. Which of the following is considered to be the world's most valuable technology company?
(a) Nokia (b) Apple
(c) Samsung (d) None of these

164. United Colors of Benetton a well known global fashion brand belongs to
(a) France (b) US
(c) Italy (d) England

165. During 2014, mobile messaging firm WhatsApp was acquired by
(a) hotmail (b) gmail
(c) facebook (d) SAP

166. Joint Nobel Prize 2014 winner Kailash Satyarthi heads the NGO called
(a) Garib Bachcho Ka Andolan
(b) Bachche Bachao Andolan
(c) Bachpan Bachao Andolan
(d) Bachcho Ka Andolan

167. 'Co-optex' is a Handloom Weavers's Cooperative Society of which state?
(a) Kerala (b) Tamil Nadu
(c) Karnataka (d) Andhra Pradesh

168. Recently published book '2014: The Election that Changed India' has been written by
(a) Yashwant Sinha (b) Rajdeep Sardesai
(c) Anita Nair (d) Anoop Mishra

169. Which of the following is considered as India's largest company in terms of revenue according to Fortune 500 list of companies for 2014?
(a) Reliance Industries (b) Indian Oil Corporation
(c) Bharat Petroleum (d) Hindustan Petroleum

170. Which of the following is not a brand belonging to Nestle group?
(a) Maggi (b) Nescafe
(c) KitKat (d) Lipton

171. Which district of Kerala has become first in India to have high speed Rural Broadband Network?
(a) Idukki (b) Ernakulam
(c) Kottayam (d) Kannur

172. Which bank in India has recently launched country's first 'contactless' debit and credit cards?
(a) SBI (b) HDFC Bank
(c) ICICI Bank (d) Axis Bank

173. Who is the Vice-Chairman of the newly created NITI Aayog which has replaced the Planning Commission?
(a) Arvind Panagariya (b) Sindhushree Khullar
(c) Raghuram Rajan (d) Jagdish Bhagwati

174. Which of the following is not a team name in the Indian Super League Football tournament?
(a) Delhi Dynamos (b) Mumbai City
(c) FC Goa (d) North-West United

175. Presently, who is the President of the World Bank?
(a) Ban Ki-moon (b) Jim Yong Kim
(c) Kofi Annan (d) Axel van Trotsenburg

176. Which airline was named the world's safest airline by AirlineRatings.com in January, 2015?
(a) Qantas (b) Emirates
(c) Turkish Airlines (d) Cathay Pacific Airways

177. Which one of the following countries is not a member of the European Union?
(a) Austria (b) Estonia
(c) Slovakia (d) Serbia

178. Japanese telecommunications giant SoftBank Corp. has a joint venture with which of the following?
(a) Tata Communications
(b) Reliance Communications
(c) Bharti Enterprises
(d) None of the above

179. Which among the following e-commerce companies announced the launch of 'Agri Store' to offer various agricultural input products to farmers?
(a) e-Bay (b) Flipkart
(c) Amazon.in (d) None of these

180. Community of Latin American and Caribbean States (CELAC) comprises how many countries?
(a) 33 (b) 37
(c) 27 (d) 23

181. Indian restaurant search services provider Zomato acquired based ..... leading restaurant search service Gastronauci in 2014.
(a) New Zealand (b) the USA
(c) Spain (d) Poland

182. Which country aims to induce additional rain each year by 2020, using an 'Artificial Weather' programme?
(a) Japan (b) Korea
(c) Australia (d) China

183. Which leading multiplex chain in India has been selected as a FIELD Global Partner for Harvard Business School (HBS)?
(a) Big Cinemas (b) DT Cinemas
(c) PVR (d) SRS Cinemas

184. Renewable energy developer and technology provider SunEdison has signed an MoU with which state to develop five gigawatts of renewable energy projects over the next 5 years?
(a) Haryana (b) Maharashtra
(c) Gujarat (d) Karnataka

185. Once a budget has been presented in the Parliament, the government has to get all money bills related to the Union Budget passed within
(a) 30 days (b) 45 days
(c) 60 days (d) 75 days

186. Which state recently launched Farmers Debt Redemption Scheme to help farmers?
(a) Telangana (b) Tamil Nadu
(c) Odisha (d) Andhra Pradesh

187. The Justice Mudgal Committee was associated with
(a) women security
(b) betting and spot-fixing scandal in cricket
(c) riots in Muzaffarnagar (UP)
(d) None of the above

188. Who among the following is currently the Chairman of ISRO?
(a) RK Sinha (b) Shekhar Basu
(c) K Radhakrishnan (d) AS Kiran Kumar

189. The SAARC summit to be held in 2016 will be hosted by
(a) India (b) Afghanistan
(c) Sri Lanka (d) Pakistan

190. Recently, which of the following days was declared by the UN as 'World Yoga Day?
(a) 15th July (b) 27th November
(c) 30th December (d) 21st June

191. Recently, HDFC bank launched its mobile branch in which of the following cities?
(a) New Delhi (b) Allahabad
(c) Ahmedabad (d) Varanasi

192. Which of the following is not a Maharatna Company?
(a) Power Grid Corporation (b) NTPC
(c) BHEL (d) GAIL

193. In November, 2014, Prime Minister Shri Narendra Modi flagged off first passenger train to
(a) Nagaland (b) Meghalaya
(c) Arunachal Pradesh (d) Tripura

194. Which state in India has become the first state to have 100% coverage of all households with bank accounts?
(a) Gujarat (b) MP
(c) Tamil Nadu (d) Kerala

195. The head office of Small Industries Development Bank of India (SIDBI) is located at
(a) New Delhi (b) Mumbai
(c) Lucknow (d) Jaipur

196. Recently, which country has signed an MoU with the government of Andhra Pradesh to develop its world class capital city?
(a) The US (b) Japan
(c) China (d) Singapore

197. According to IMF, the economy of China is likely to grow at .....in 2015.
(a) 6.4% (b) 6.8%
(c) 7.9% (d) 7.1%

198. The Men's Hockey Champions Trophy 2014 was won by
(a) Australia (b) Germany
(c) Pakistan (d) India

199. In December 2014, who among the following won the maiden London Classic chess title?
(a) Magnus Carlsen
(b) Michael Adams
(c) Viswanathan Anand
(d) Vladimir Kramnik

200. The European Football Championship 2016 will be held in
(a) the UK (b) Germany
(c) France (d) Hungry

HINTS & EXPLANATIONS

1. (d) All of these as mentioned in the passage India and Australia hold great promise for cooperation in the fields of energy, agriculture and education.
2. (d) None of the given options is correct as it is mentioned in the passage that there was neglect in bilateral relations for last 30 years.
3. (c) Contribution of Australian education sector in India has really great potential.
4. (d) The lines i.e. shown in the option (d) has not been mentioned in the passage. So option (d) is not true.
5. (d) According to the passage, road safety in India is considered grossly inadequate.
6. (c) The government has not done anything and has not directed auto-makers to maintain safety norms.
7. (c) Generally in poor countries, road accidents are higher than wealthy countries.
8. (a) The statement that Indian road safety standards are at par with international norms is not true at all.
9. (a) As per the passage, the government is keen that mobile banking should be available to all citizens at a reasonable price.
10. (d) USSD technology does not require Android or Internet or i-pad facility. So, option (d) is the correct answer.
11. (b) Telecom companies were not very keen to share their infrastructure to make mobile banking facility available to all citizens of the country.
12. (b) Not only Kenya, but Bangladesh is also using USSD, hence statement (b) is not true.
13. (d) Young Indians prefer international brands as they are available at affordable prices and discounts. Government has recently allowed 100% FDI in single brand retail, hence all these options are correct.
14. (d) None of the given options is valid here as international brand sales has gone up without these factors.
15. (c) Consumption expenditure on clothes in India is likely to increase 3.8 times about 14 lakh crore in next 7 to 8 years.
16. (b) Popular brands Allen Solly, Louis Philippe and Van Heusen are owned by Aditya Birla Group, this statement is not mentioned in the passage. Hence, it is incorrect.
17. (c) There is a need to infuse quality in the present institutions.
18. (c) We should encourage private participation quite substantially to become an economically progressive country.
19. (c) Presently, there are many institutions but acquiring formal skills by young Indians is rather unsatisfactory.
20. (b) Presently, we have adequate participation by private corporates. This statement is not true.
21. (b) The word is DISCARD and its opposite will be accept.
22. (b) The word is BEAUTIFUL and its opposite is ugly.
23. (a) The word is POWERFUL and its opposite will be weak.
24. (c) Eye-catching and beautiful are the two words to be placed in blanks.
25. (d) Intelligent and hardworking are the two words which will be most appropriate.
26. (a) Reduced and high are the correct words to be filled here.
27. (c) CBEDA
28. (b) CEDAB
29. (d) CDEAB
30. (a) DEBAC
31. (c) 32. (c) 33. (b) 34. (c)
35. (c) After rearranging the jumbled alphabets, the words are School, College, Shore and University. Option (c) is the odd one out here. The other places are educational institutes
36. (d) After rearranging the jumbled alphabets, the words are House, Building, Mansion and Russia. Odd one out here is Russia which is a country whereas the rest of the options are places where one lives.
37. (b) After rearranging the jumbled alphabets, the words are Necklace, Lion, Bangles and Bracelet. Option (b) is odd one here as rest of the words indicate pieces of jewellery.
38. (d) This option shows the correctly used written English.
39. (d) This option shows the correctly used written English.
40. (b) This option shows the correctly used written English.
41. (b) Conclusion I does not follow because we cannot conclude the financial condition of 'all parents' from the statement. Conclusion II follows, because 'Parents' preparedness to pay any cost shows their observation.

42. (c) Conclusion I does not follow as we cannot say anything about the replacement. Conclusion II also does not follow as we cannot conclude anything about the reason of depletion.
43. (c) Conclusion I does not follow as it is not a conclusion but action. Conclusion II also does not follow as nothing is said about the implementation of discipline.
44. (c) Conclusion I does not follow as only the allocation of funds will not ensure improvement in education. Conclusion II also does not follow.
45. (b) Both A and R are true. India is a democratic country because its government is elected by its people. India has its own constitution, but it does not explain A.
46. (b) Most of the ancient civilisations grew near the rivers due to easy availability of water for the people and their animals.
R is also true but it is not the correct explanation of A.
47. (a) Goitre is a common disease in mountainous regions and it is caused by lack of iodine content in the diet. So, both A and R are true and R is the correct explanation of A.
48. (a) Aluminium is produced from its ore and extraction requires abundant supply of electricity. So, both A and R are true and R is the correct explanation of A.
49. (b) The University had banned the use of phones inside the college premise because of the petition of the teachers. So, Statement II is cause and Statement I is its effect.
50. (b) The extensive training programme of district administration has led the literacy rate to increase.
So, Statement II is cause and Statement I is its effect.
51. (b) The power crisis has led to the load shedding in rural and semi-urban areas. So, Statement II is cause and Statement I is its effect.
52. (a) Due to heavy import of sugar the price have fallen in domestic market. So, Statement I is cause and Statement II is its effect.

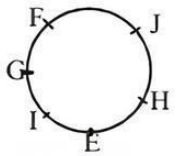
Sol. (53-55)

Candidates from Science block courses – X, Y, Z.
Candidates from commerce block courses – L, M, N, P.
Incompatible pairs – Y and L, Z and N, L and M.

53. (d) In option (a), L and M can not be together. In option (b), N and Z cannot be together. In option (c) three persons from commerce block i.e. M, N and P are given, So, it is also not possible.
Only the team given in option (d) can be possible.
54. (b) Option (a) is eliminated because M can not be with L. Option (c) and (d) are also eliminated because Z and N can not be in same team.
Only the team given in option (b) can be formed.
55. (b) Option (a) is eliminated because L and M can not be in same team. Option (c) and (d) are eliminated because N can not be a member of Z's team. From the given alternatives only M and P are assured to be the members of the team with Y and Z.

Sol. (56-58):

According to the information, the sitting arrangement is as following:



56. (a) From the above figure, E is sitting to the immediate right of I.
57. (b) I is between E and G:
58. (d) None of the above

Sol. (59-61):

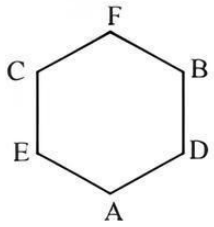
According to the information, the arrangement of five courses is as following:

				Months		
Course	**Lecturers**	**Jan**	**Feb**	**March**	**April**	**May**
A	Q	×	×	✓	×	×
B	P	×	✓	×	×	×
C	S/T	×	×	×		
D	S/T	×	×	×		
E	R	✓	×	×	×	×

59. (c) Either C or D course is taught by S.
60. (a) Q lecturer's course immediately follows after course B.
61. (c) E course is taught in the month of January.

Sol. (62-64)

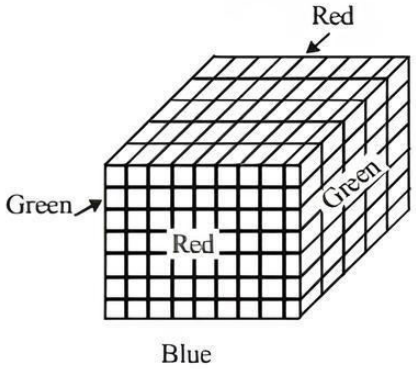
According to the information, the sitting arrangement of friends is as following:



62. (a) A is sitting between D and E.
63. (b) E is sitting opposite to B.
64. (a) Except B and E, all are sitting adjacent to each other.

Sol. (65-67):

Total number of small cubes = 315



65. (a) All the corner cubes will have three faces coloured.
So, number of such cubes = $4 \times 2 = 8$

66. (b) Number of cubes having two faces coloured.
$(9-2)\times 2\times 2+(7-2)\times 2\times 2+(5-2)\times 2\times 2$
$= 28+20+12 = 60$

67. (c) Number of cubes having one face coloured
$= 35\times 2+15\times 2+21\times 2 = 142$

68 (c) The pattern is as follows:

$P \xrightarrow{+2} R \xrightarrow{+2} T \xrightarrow{+2} V \xrightarrow{+2} \boxed{X}$
$3 \xrightarrow{+2} 5 \xrightarrow{+3} 8 \xrightarrow{+4} 12 \xrightarrow{+5} \boxed{17}$
$C \xrightarrow{+3} F \xrightarrow{+3} I \xrightarrow{+3} L \xrightarrow{+3} \boxed{O}$

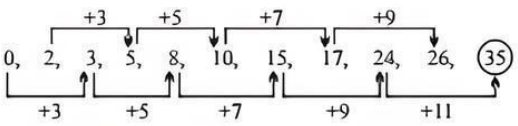
69. (b) The pattern is as following:

$G \xrightarrow{+3} J \xrightarrow{+3} M \xrightarrow{+3} P \xrightarrow{+3} S \xrightarrow{+3} V$
$4 \xrightarrow{+5} 9 \xrightarrow{+11} 20 \xrightarrow{+23} 43 \xrightarrow{+47} 90 \xrightarrow{+95} 185$
$T \xrightarrow{-2} R \xrightarrow{-2} P \xrightarrow{-2} N \xrightarrow{-2} L \xrightarrow{-2} J$

70. (c) The pattern is as follows:

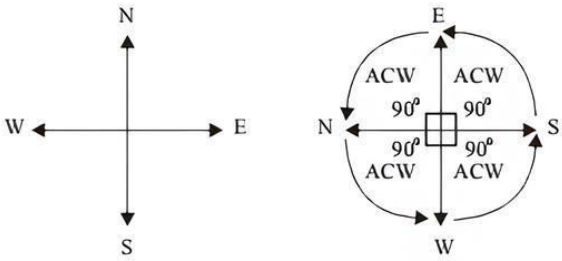
$2 \xrightarrow{+5} 7 \xrightarrow{+7} 14 \xrightarrow{+9} 23 \xrightarrow{+11} 34 \xrightarrow{+13} 47$
$Z \xrightarrow{-1} Y \xrightarrow{-1} X \xrightarrow{-1} W \xrightarrow{-1} V \xrightarrow{-1} U$
$5 \xrightarrow{+2} 7 \xrightarrow{+2} 9 \xrightarrow{+2} 11 \xrightarrow{+2} 13 \xrightarrow{+2} 15$

71. (d) The pattern of the series is as following



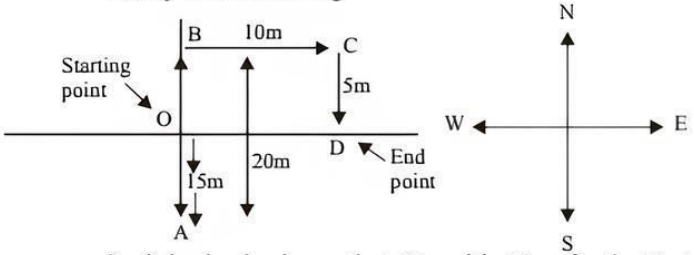
So, 35 will replace the questions mark.

72. (b) According to the given information, the direction is as following



So, he was travelling South.

73. (a) According to the given information, the direction of Neeraj is as following



So, it is clearly shown that, Neeraj is 10 m for the East direction form his starting position.

74. (c) Let the present age of father = x
and the present age of son = y

From question – $\frac{x}{y} = \frac{5}{1} \Rightarrow x = 5y$ ...(i)

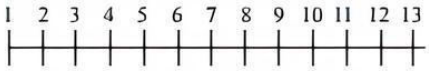
Again from question,

$\frac{x+10}{y+10} = \frac{3}{1} \Rightarrow x+10 = 3y+30$

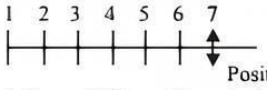
$5y-3y = 20 \Rightarrow 2y = 20$ (From Eq.(i))
$y = 10$
From Eq. (i), $x = 50$
Sum of the ages = x+ y = 50 + 10 = 60 yr

75. (b) Let the average age of 8 men = x yr
Total age of 8 man = 8x yr
Now, new average age = x + 2 yr
Total age = 8 (x + 2) yr
Difference of ages = $8(x+2)-8x = 8x+16-8x = 16$ yr
∴ Age of new man = 20 + 16 = 36 yr
So, the new man is 16 yr older to the man by whom the new man is replaced.

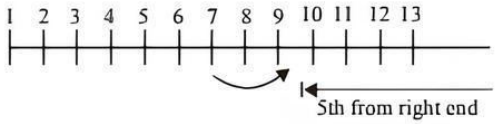
76. (c) According to the given information, the original positions of 13 students are standing in horizontal row from left to right is as below



The position of Sahil is 7th is the row as shown below



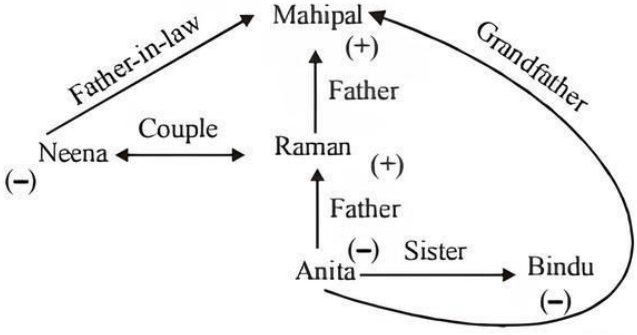
After shifting the students according to the given information the new position of Sahil becomes 9th as shown below



New position of Sahil Clearly, he in 5th from the right end.

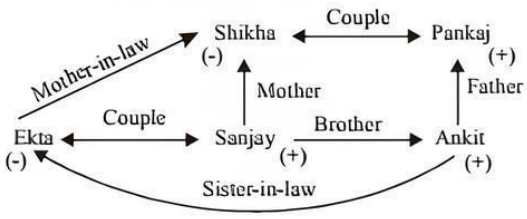
77. (d) There are three 7's which are immediately proceeded by a pair of numbers whose product is more than the product of pair of numbers immediately following 7 is
22 7 13 ⇒ 4 > 3
48 7 65 ⇒ 32 > 30
and 39 7 46 ⇒ 27 > 24

78. (d) The relation is as following



So, it is clearly shown that, Neena is the wife of Raman and daughter in law of Mahipal and mother of Anita and Bindu. Therefore, Bindu and Anita both are grand daughters of Mahipal.

79. (d) The relation is as following:



It is clearly shown that, Shikha is the mother of Ankit.

80. (d) In a code language

mok (dan) sil → nice big (house) ...(i)

(fit) kon (dan) → (house) (is) good ...(ii)

warm tir (fit) → cost (is) high ...(iii)

From Eq. (ii) it is clearly shown that, 'kon' is code for good

81. (d) Given P = ₹10000, A = ₹12000 and n = 5 yr

$$A = P\left(1+\frac{r}{100}\right)^n$$

using the formula,

For 5 yr, $12000 = 10000\left(1+\frac{r}{100}\right)^5$

$$\Rightarrow \frac{12}{10} = \left(1+\frac{r}{100}\right)^5 \Rightarrow \frac{6}{5} = \left(1+\frac{r}{100}\right)^5 \quad ...(i)$$

For 20 yr,

$$A = 10000\left(1+\frac{r}{100}\right)^{20} = 10000\left[\left(1+\frac{r}{100}\right)^5\right]^4$$

$$= 10000\left(\frac{6}{5}\right)^4 \quad \text{[From (i)]}$$

$$\therefore A = 10000 \times \frac{6}{5}\times\frac{6}{5}\times\frac{6}{5}\times\frac{6}{5} = 216\times 6\times 16$$

$\therefore$ A = ₹20736

82. (c) Given A_1 = ₹944, T = 3 yr, R_1 = R (let)

and A_2 = ₹980, $R_2 = \left(R + \frac{25}{100}\text{ of }R\right)$

SI is the difference of amounts as the time period is same

i.e. SI = $A_2 - A_1$ = 980 – 944 = 36

As the rate is increased by 25%.

So, 25% of SI = 36

$$\Rightarrow SI = \frac{36\times 100}{25} = 144$$

We know that, A = P + SI

$\Rightarrow$ 944 = P + 144

$\Rightarrow$ p = 944 – 144 = ₹800

$$SI = \frac{P\times R_1\times T}{100}$$

$$\Rightarrow 144 = \frac{800\times R\times 3}{100} \Rightarrow \frac{144}{8\times 3} = R$$

$\therefore$ R = 6%

83. (c) Let number of shepherds = x

and number of sheep = y

Given, number of heads = 60

According to the question, x + y = 60 ...(i)

Number of legs = 168

$\Rightarrow$ 2x + 4y = 168 ...(ii)

As we know that shepherd has 2 legs and sheep has 4 legs.- On multiplying (i) by 2, we get

2x + 2y = 120 ...(iii)

On substracting, (iii) from (ii), We get

2x + 4Y = 168

2x + 2y = 120

– – –

2y = 48

$\therefore$ y = 24

Therefore, number of sheep = 24.

84. (d) Here, total number of students = 30

Average weight of the boys = 20 kg

Average weight of the girls = 25 kg

From the above data, we cannot infer anything.

So, data is insufficient for finding answer.

85. (a) Here, percentage gain = 9.09% = $\frac{1}{11}$ %

Let SP = ₹100, then CP =

$$\frac{100}{\left(1+\frac{9.09}{100}\right)} = \frac{100}{109.09}\times 100$$

= ₹91.66

$\therefore$ Quantity of water in the mixture = 100 – 91.66

= 8.34% $\simeq$ 83.33 mL

86. (b) Let the number of students in the sections A, B, C and D be a, b, c and d, respectively. Then, total marks of students of sections A, B, C and D will be 0.45a, 0.50b, 0.72c and 0.80d, respectively.

According to the question,

$$\frac{0.45a+0.50b+0.72c+0.80d}{a+b+c+d} = 0.60$$

$\Rightarrow$ 0.45a + 0.50b + 0.72c + 0.80d

= 0.60a + 0.60b + 0.60 c + 0.60 d 0.12c

$\Rightarrow$ 0.12c + 0.20d = 0.15a + 10b ...(i)

$\Rightarrow$ 12c + 20d = 15a + 10b

Also, $\frac{0.45a+0.50b}{a+b} = 0.48$

$\Rightarrow$ 0.45a + 0.50b = 0.48a + 0.48b

$\Rightarrow$ 0.03a = 0.02b

$\Rightarrow$ 3a = 2b

$$\Rightarrow b = \frac{3}{2}a \quad ...(ii)$$

And, $\frac{0.50b+0.72c}{b+c} = 0.60$

$\Rightarrow \ 0.50b + 0.72c = 0.60b + 0.60c$

$\Rightarrow \ 0.10b = 0.12c$

$\Rightarrow \ 5b = 6c$

$\Rightarrow \ c = \frac{5}{6}b = \frac{5}{6}.\frac{3}{2}a$ [From (ii)]

$\therefore \ c = \frac{5}{4}a$ ...(iii)

Putting the values from (ii) and (iii) in (i),

$12.\frac{5}{4}a + 20d = 15a + 10.\frac{3}{2}a$

$\Rightarrow 20d = (15 + 15 - 15)a$

$\Rightarrow 20d = 15a \Rightarrow \frac{a}{d} = \frac{20}{15} = 4:3$

87. (c) Required probability = P(A) – P.P $(\overline{B})$ P (A) +...

$= \frac{1}{2} + \left(\frac{1}{2}\right)^3 + \left(\frac{1}{2}\right)^5 + \left(\frac{1}{2}\right)^7 + ...\infty$

which is an infinite geometric progression.
Here First term = 1/2 and common ratio = 1/4

$\therefore \ S_\infty = \frac{a}{1-r} = \frac{\frac{1}{2}}{1-\frac{1}{4}} = \frac{\frac{1}{2}}{\frac{3}{4}} = \frac{1}{2} \times \frac{4}{3} = \frac{2}{3}$

$\therefore$ P (winning of A) = $\frac{2}{3}$

and P (winning of B) = $1 - \frac{2}{3} = \frac{1}{3}$

88. (c) Here, P (hitting the target by A) = $\frac{1}{3}$

and P(hitting the target by B) = 2/5

$\therefore$ P (A or B hit the target) = $\frac{1}{3} + \frac{2}{5} = \frac{5+6}{15} = \frac{11}{15}$

89. (b) Given, a bag contains 4 red and 3 black balls and second bag contains 2 red and 4 black balls.
From the two bags, probability of selection of a bag =1/2
$\therefore$ Choose a red ball from the bag,

P(getting a red ball) $= \frac{1}{2} \times \frac{{}^4C_1}{{}^7C_1} + \frac{1}{2} \times \frac{{}^2C_1}{{}^6C_1}$

$= \frac{1}{2} \times \frac{4}{7} + \frac{1}{2} \times \frac{2}{6} = \frac{4}{14} + \frac{1}{6}$

$= \frac{4 \times 3 + 7 \times 1}{42} = \frac{12+7}{42} = \frac{19}{42}$

90. (b) Let E_1 and E_2 be the respective events of choosing a diamond card and a card which is not diamond.
Let A denote the lost card.

$\therefore P(E_1) = \frac{13}{52} = \frac{1}{4}$

$P(E_2) = \frac{39}{52} = \frac{3}{4}$

When one diamond card is lost, there are 12 diamond cards out of 51 cards.
Two cards can be drawn out of 12 diamond cards in ${}^{12}C_2$ ways.
Similarly, 2 diamond cards can be drawn out of 51 cards. ${}^{51}C_2$ ways.
The probability of getting two cards. when one diamond card is lost, is given by P $(A|E_1)$

$P(A \mid E_1) = \frac{{}^{12}C_2}{{}^{51}C_2} = \frac{12!}{2!\times 10!} \times \frac{2!\times 49!}{51!} \times \frac{11 \times 12}{50 \times 51} = \frac{22}{425}$

When the lost card is not a diamond, there are 13 diamond cards out of 51 cards.
Two cards can be drawn out of 13 diamond cards in ${}^{13}C_2$ way whereas 2 cards can be drawn out of 51 cards in ${}^{51}C_2$ ways. The probability of getting two cards, when one card is lost which is not diamond, is given by $P(A|E_2)$.

$P(A \mid E_2) = \frac{{}^{13}C_2}{{}^{51}C_2} = \frac{13!}{2!\times 11!} \times \frac{2!\times 49!}{51!} = \frac{12 \times 13}{50 \times 51} = \frac{26}{425}$

The probability that the lost card is diamond is given by $P(E_1|A)$.
By using Bayes' theorem, we obtain

$P(E_1 \mid A) = \frac{P(E_1) \cdot P(A \mid E_1)}{P(E_1) \cdot P(A \mid E_1) + P(E_2) \cdot P(A \mid E_2)}$

$= \frac{\frac{1}{4} \cdot \frac{22}{425}}{\frac{1}{4} \cdot \frac{22}{425} + \frac{3}{4} \cdot \frac{26}{425}} = \frac{\frac{1}{425}\left(\frac{22}{4}\right)}{\frac{1}{425}\left(\frac{22}{4} + \frac{26 \times 3}{4}\right)}$

11

$= \frac{2}{25} = \frac{11}{50}$

91. (d) Given, Ashok and Amit started a business with investment of ₹ 5 lakh and ₹ 4 lakh.
$\therefore$ Ratio of their profits = 5 : 4
Let the total profit gained in the business be ₹ x.

Then, Ashok's share = $\frac{5}{9}\left(x - \frac{x}{5}\right) = \frac{5}{9}\left(\frac{4x}{5}\right) = \frac{4x}{9}$

and Amit's share $= \frac{x}{5} \times \frac{90}{100} + \left(x - \frac{x}{5}\right) \times \frac{4}{9}$

$= \frac{9x}{50} + \frac{4x}{5} \times \frac{4}{9} = \frac{9x}{50} + \frac{16x}{45}$

$= \frac{405x + 800x}{2250} = \frac{1205x}{2250}$

But both shares are equal in value.

$\therefore \quad \frac{4x}{9} = \frac{1205x}{2250}$

(since, $\frac{x}{5}$ is taken as salary by Amit)

Note: in case of no profit given answer will be cannot be determined

92. (b) Let profit earned by C is x.

So, B's share of profit = $\frac{85}{100} \times x$

And, A's share of profit = $\frac{110}{100} \times \frac{85}{100} x$

$\therefore$ Ratio of their investments = $\frac{110}{100} \times \frac{85}{100} x : \frac{85}{100} x : x$

$= \frac{11 \times 85}{1000} : \frac{85}{100} : 1 = \frac{11 \times 85 : 850 : 1000}{1000}$

$= 187 : 170 : 200$

93. (c) (A+B)'s 1 day's work = 1/10
(B+C)'s 1 day's work = 1/15
(A+C)'s 1 day's work = 1/12

Now, (A + B + C)'s 1 day's work = $\frac{1}{2}\left(\frac{1}{10} + \frac{1}{15} + \frac{1}{12}\right)$

$= \frac{1}{2}\left(\frac{6+4+5}{60}\right) = \frac{1}{2}\left(\frac{15}{60}\right) = \frac{1}{2}\left(\frac{1}{4}\right) = \frac{1}{8}$

Hence, A, B and C together can finish the work in 8 days.

94. (b) A man can do a work in 20 days.
Then, 5 man can do it in 4 days.
So, in 2 days of work = 50% work is completed.
Now, a woman can complete the work in 30 days.
But here, 1/2 of the work is to be complete.
Again, 1 woman can complete in 30 days.
Then, 30 women can complete the work in 1 day.
So, to complete 1/2 of the work, required number of women = $\frac{1}{2} \times 30 = 15$

95. (c) Total distance of journey = 300 km
Since, he cover half of the distance with the speed of 60 km/h.

$\therefore$ Time taken = $\frac{150}{60} = \frac{15}{6} = \frac{5}{2} = 2.5$ h

Again, he travels for 30 min with the speed of 50 km/h

$\therefore$ Distance = $50 \times \frac{1}{2} = 25$ km

Remaining distance = 300 – (150+25)
= (300 – 175) = 125 km

Remaining time = $\left[4.5 - (2.5 + 0.5)\right]$
= 4.5 – 3 = 1.5 h

$\therefore$ required speed = $\frac{\text{Distance}}{\text{Time}} = \frac{125}{1.5} = \frac{250}{3}$ km/h

96. (a) Speed of car A on Monday = 60 km/h
and distance covered = 70 km

$\therefore$ Time = $\frac{70}{60} = \frac{7}{6}$ h

Average speed of Monday, Wednesday and Friday
= Total distance/Total time taken

$= \frac{210}{3 \times \frac{7}{6}} = \frac{210 \times 2}{7} = 60$ km/h

Average speed on Tuesday and Thursday
=Total distance/Total time taken

$= \frac{140 \times 5}{2 \times 7} = 50$ km/h

$\therefore$ Average speed of week = $\frac{60 + 50}{2} = \frac{110}{2} = 55$ km/h

97. (d) Let the capacity of the tank be x L. Time taken to fill a tank by pipe = 20 min
Time taken to fill a tank by pipe B = 30 min
Time taken to empty a tank by pipe C = 45 min
Part of tank filled in 1 minute, when all pipes are opened.

$= \frac{x}{20} + \frac{x}{30} - \frac{x}{45} = \frac{(9+6-4)x}{180} = \frac{11x}{180}$

Part emptied by C in 30 min = $\frac{x}{45} \times 30 = \frac{2x}{3}$

$\therefore$ Time taken to fill the tank = $\frac{180}{11x} \times \frac{2x}{3} = \frac{120}{11}$
= 10.909 min $\simeq$ 10 min

98. (d) Since, pipe A takes 3h to fill $\frac{4}{5}$th part of the tank

So, pipe A can fill the full tank in $\frac{5}{4} \times 3$ i.e.in $\frac{15}{4}$ h.

Let C can empty the full tank in xh.
According to the question,
A's (5 + 3) h work + C's 5h work = 20%

$\Rightarrow 8 \times \frac{4}{15} - \frac{1}{x} \times 5 = \frac{1}{5} \Rightarrow \frac{5}{x} = \frac{32}{15} - \frac{1}{5}$

$\Rightarrow \frac{5}{x} = \frac{29}{15} \Rightarrow \frac{1}{x} = \frac{29}{75}$

$\therefore$ C can empty the tank in $\frac{75}{29}$ h.

Thus, time taken by C to empty 20% of the tank (as only 20% part of the tank is filled)

$= \frac{75}{29} \times \frac{1}{5} = \frac{15}{29}$ h.

99. (d) $\frac{x}{4} = \frac{3y}{5} = \frac{-Z}{3} = \frac{3x - 6y - 4z}{k}$

Taking first and second terms,

$\frac{x}{4} = \frac{3y}{5} \Rightarrow 5x = 12y$ ...(i)

Taking second and third terms,

$$\frac{3y}{5}=\frac{-z}{3}\Rightarrow 9y=-5z \quad ...(ii)$$

On putting the values from (i) and (ii), we get

$$\frac{3y}{5}=\frac{3\times\frac{12}{5}y-6y+4\times\frac{9}{5}y}{k}$$

$$\Rightarrow k\times\frac{3y}{5}=\frac{36}{5}y-6y+\frac{36}{5}y$$

$$\Rightarrow k\times\frac{3y}{5}=\frac{72}{5}y-6y$$

$$\Rightarrow \frac{k\times 3y}{5}=\frac{72y-30y}{5}$$

$$\Rightarrow k\times\frac{3y}{5}=\frac{42}{5}y\Rightarrow 3\times k=42$$

$$\therefore k=\frac{42}{3}=14$$

100. (d) According to the question,
A's share = 1 rupee = 100 p
B's share = 65 p
C's share = 35 p
$\therefore$ A : B : C = 100 : 65 : 35

$$\text{B's share in the total sum} = \frac{65}{100+65+35}=\frac{65}{200}$$

$$\therefore \frac{65}{200}\times \text{sum}=1300$$

$$\text{Sum}=\frac{1300\times 200}{65}=₹4000$$

101. (b) Let the savings of X, Y and Z be ₹ x, ₹ y and ₹ z, respectively.

Income	X	Y	Z	=	5 : 7 : 9
Expenditure	X	Y	Z	=	6 : 7 : 12

Given, X saves 30% of his income.
We know that, income – Expenditure = Savings

$$\therefore 5x-6y=\frac{30}{100}\text{ of }5x$$

$$\Rightarrow 5x-6y=\frac{3}{2}x\Rightarrow 5x-\frac{3}{2}x=6y$$

$$\Rightarrow \frac{10x-3x}{2}=6y\Rightarrow\frac{7x}{2}=6y$$

$$\Rightarrow x=\frac{6\times 2}{7}y=\frac{12}{7}y \quad ...(i)$$

$$\text{Savings of X}=\frac{3}{2}\times\frac{12}{7}y=\frac{18}{7}y$$

For the person Y, 7x – 7y = Savings
On putting the value of x from (i), we get

$$\text{Savings} = 7\times\frac{12y}{7}-7y=12y=7y=5y$$

Similarly, for person Z
Savings = 9x – 12y
On putting Savings value of x from (i), we get

$$\text{Savings} = 9\times\frac{12y}{7}-12y=\frac{108y-84y}{7}=\frac{24y}{7}$$

$\therefore$ Ratio of their savings = X : Y : Z

$$=\frac{18}{7}y:5y:\frac{24}{7}y$$

$$=18y:35y:24y=18:35:24$$

102. (c) Marks scored by Rahul in English, Mathematics and Science are in the ratio

$$\frac{1}{3}:\frac{1}{4}:\frac{1}{5}$$

$\therefore$ LCM of 3, 4 nad 5 = 60
$\therefore$ Marks scored by Rahul in the ratio

$$=\frac{1}{3}\times 60:\frac{1}{4}\times 60:\frac{1}{5}\times 60$$

$$=20:15:12$$

Rahul's total score = 705 given

$$\therefore \text{Marks in Mathematics} = \frac{15}{(20+15+12)}\times 705$$

$$=\frac{15}{47}\times 705=15\times 15=225$$

103. (c) Let the total number of votes casted be x.
Number of votes one candidate got = 47%
Number of votes another candidate got = 53%
Difference of votes = 540
Now, according to the question,
53% of x – 47% of x = 540
$\Rightarrow$ 6% of x = 540

$$\therefore x=\frac{540\times 100}{6}=9000$$

Therefore, total number of votes casted were 9000.

104. (d) Here, girls = 55%
So, boys = (100 – 55) = 45%
Let total number of students be x.
According to the question
Number of boys present on Monday

$$\frac{80}{100}\text{ of }\frac{45}{100}\text{ of x}$$

$$=\frac{8}{10}\times\frac{45}{100}\times x=\frac{36}{100}\text{ of x}$$

Since, total students present on that day is 70%
Number of girls present = 70% of x – 36% of x

$$=\frac{(70-36)x}{100}=\frac{34}{100}\text{ of x}$$

= 34% of total students.

105. (a) Here, Students failed in Maths = 40%
Students failed in English = 30%
Students failed in both = 10%

$$\text{Students passed in both} = [100-(40+30-10)]\%$$

$$=[100-60]\%=40\%$$

106. (c) According to the formula,

$$\text{Percentage increase in area} = \left(25+8+\frac{25\times 8}{100}\right)$$
$$= (25+8+2)$$
$$= (25+10) = 35\%$$

107. (a) Time taken by A to do work = 20 days

So, A's 1 day's work = $\frac{1}{20}$

Time taken by B to do the same work = 10 days

So, B's 1 day's work = $\frac{1}{10}$

A's 5 day's work = $\frac{1}{20}\times 5 = \frac{1}{4}$

Remaining work = $1-\frac{1}{4} = \frac{4-1}{4} = \frac{3}{4}$

Work that A and B can do in one day

$$= \left(\frac{1}{20}+\frac{1}{10}\right) = \frac{1+2}{20} = \frac{3}{20}$$

$\therefore$ Time taken to complete the remaining work = 5 days
And, total time taken to finish the work = 5 + 5 = 10 days

108. (c) Here $M_1 = 10$, $D_1 = 10$, $T_1 = 10$ and
$M_2 = 20$, $D_2 = ?$, $T_2 = 5$
So, $M_1 \times D_1 \times T_1 = M_2 \times D_2 \times T_2$
$\Rightarrow 10 \times 10 \times 10 = 20 \times D_2 \times 5$

$$\Rightarrow \frac{10\times 10\times 10}{20\times 5} = D_2$$

$\Rightarrow D_2 = 10$ days
Therefore, the work will be completed in 10 days.

109. (a) Let the total distance = x km
Total time = 5 h

$$\text{We know that, Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$\Rightarrow \frac{x}{2}\times\frac{1}{40}+\frac{x}{2}\times\frac{1}{60} = 5$$

$$\Rightarrow \frac{x}{80}+\frac{x}{120} = 5$$

$$\Rightarrow x\left(\frac{1}{80}+\frac{1}{120}\right) = 5$$

$$\Rightarrow x\left(\frac{3+2}{240}\right) = 5$$

$$\Rightarrow x = \frac{5\times 240}{5} \Rightarrow x - 240 \text{ km}$$

Distance travelled by car = 240 km

110. (d) The car starts with speed of 20 km/h. So, the car covers a distance of 20 km in one hour. The speed of car increase after every hour.

	1h	2h	3h	4h	5h	6h	7h
Car A	20	30	40	50	60	70	80
Car B	50	50	50	50	50	50	50

Distance travelled by car A in 7 h
= 20 + 30 + 40 + 50 + 60 + 70 + 80 = 350
Distance travelled by car B in 7 h
= 50 + 50 + 50 + 50 + 50 + 50 + 50 = 350
So, both the cars travel equal distance in 7 h.

Alternative Method

Let the required time be t hours. Distance covered by car A in t hours
= (20 + 30 + 40 + ... + t) km

$$= \frac{t}{2}[2(20)+(t-1)10]\text{km}$$

Distance covered by car B in t hours
= 50 t m

$$\text{Here, } 50\,t = \frac{t}{2}[2(20)+(t-1)10]$$

$\Rightarrow t = 7$

111. (d) Pipes A and B can fill a tank in 10 h. B and C can fill it in 12 h, A and C can fill it in 8 h.

$$\text{So, } 2(A+B+C) = \frac{1}{10}+\frac{1}{12}+\frac{1}{8}$$

$$\Rightarrow A+B+C = \frac{1}{2}\left(\frac{1}{10}+\frac{1}{12}+\frac{1}{8}\right) = \frac{1}{2}\left(\frac{12+10+15}{120}\right)$$

$$= \frac{1}{2}\times\frac{37}{120}$$

$\therefore$ In 1 h, pipe B alone can fill the part of tank

$$= \frac{1}{2}\times\frac{37}{120}-\frac{1}{8} = \frac{370-300}{2400} = \frac{70}{2400} = \frac{7}{240}$$

Hence, B alone can fill the tank in $\frac{240}{7}$ h.

112. (b) Pipe A can fill a tank in 30 min, B and C can fill the tank in 90 min and A and B can fill the tank in 20 min. Now, in 1 min, pipe B alone can fill the part of tank
= (A + B) − A

$$= \frac{1}{20}-\frac{1}{30}$$

$$= \frac{3-2}{60} = \frac{1}{60}$$

And In 1 min, pipe C alone can empty the tank = B + C − B

$$= \frac{1}{90}-\frac{1}{60}$$

$$= \frac{2-3}{180} = \frac{-1}{180}$$

Here, negative sign means that pipe C is an outlet pipe
So, the pipe C can empty the tank in 180 min.

113. (d) Ratio of investments by A, B and C =
10000 : 12000 : 16000
= 10 : 12 : 16
= 5 : 6 : 8
∴ Difference in investments of C, A and B together

$$= \left[\left(\frac{5}{19}+\frac{6}{19}\right)-\frac{8}{19}\right]\times 200000$$

$$= \left(\frac{11}{19}-\frac{8}{19}\right)\times 200000$$

= ₹ 31578.94 ~ ₹ 31579

114. (a) Let the investment of Ramesh be ₹ x.
Amount of profit left after paying the rent

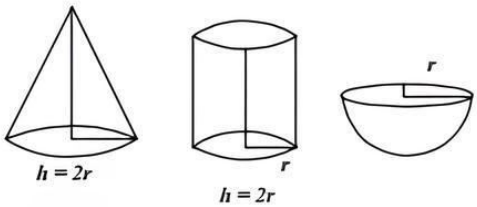
$$= x-\frac{1}{8}x=\frac{7}{8}x$$

Now, according to the question,

$$\frac{7}{8}x=140000 \Rightarrow x=\frac{140000}{7}\times 8=160000$$

Hence, Ramesh's investment is ₹ 160000.

115. (a)



We know that,

Volume of cylinder = $\pi r^2 h$

Volume of cone = $\frac{1}{3}\pi r^2 h$

Volume of hemisphere = $\frac{2}{3}\pi r^3$

ratio of their volumes

$$= \frac{1}{3}\pi r^2 h : \pi r^2 h : \frac{2}{3}\pi r^3 = \frac{1}{3}r^2.2r : r^2.2r : \frac{2}{3}r^3$$

$$= \frac{2}{3}.r^3 : 2r^3 : \frac{2}{3}r^3 = \frac{2}{3} : 2 : \frac{2}{3} = 2 : 6 : 2$$

= 1 : 3 : 1

116. (b) Sides of triangle
a = 5 cm, b = 12 cm and c = 13 cm

$$s=\frac{a+b+c}{2}=\frac{5+12+13}{2}=\frac{30}{2}=15$$

By Heron's Formula

Area of triangle = $\sqrt{s(s-a)(s-b)(s-c)}$

$$=\sqrt{15(15-5)(15-12)(15-13)}$$

$$=\sqrt{15\times 10\times 3\times 2}$$

$$=\sqrt{5\times 3\times 5\times 2\times 3\times 2}=\sqrt{5\times 5\times 3\times 3\times 2\times 2}$$

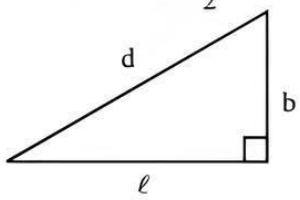
$= 5 \times 3 \times 2 = 30\ cm^2$

Given Area of rectangle = Area of triangle
So, area of rectangle = 30 cm^2
Width of rectangle = 10 cm
We know that, Area of rectangle = Length × Width
So, $30 = \ell \times 10$

$\ell = 3$ cm

Perimeter of rectangle = $2(\ell + W)$
$= 2(3 + 10) = 2 \times 13 = 26$ cm

117. (d) Given $\ell + b - d = \frac{1}{2}\ell$



$$b-d=\frac{-1\ell}{2}$$

$$d-b=\frac{\ell}{2} \qquad ...(i)$$

$$d^2-b^2=\ell^2$$

$$(d-b)(d+b)=\ell^2$$

$$\frac{\ell}{2}(d+b)=\ell^2$$

$$d+b=2\ell \qquad ...(ii)$$

Subtracting (ii) From (i),

$$d-b=\frac{\ell}{2}$$

$$d+b=2\ell$$

$$-2b=\frac{\ell}{2}-2\ell$$

$$-2b=\frac{-3\ell}{2}$$

$$b=\frac{3\ell}{4}$$

$$\frac{b}{\ell}=\frac{3}{4}$$

∴ Ratio of shorter side to longer side = 3 : 4

119. (d) As per similar to sol. (117).

119. (c) A_1 = ₹ 6600, T = 4 yr and R = r_1
A_2 = ₹ 7000, T = 4 yr, R = r + 25% of r
Here, SI is the difference of amount as the time period is same,
So, $SI = A_2 - A_1$
$= 7000 - 6600 = 400$
Now, according to the question
25% of SI = 400

$$SI=\frac{400\times 100}{25}=₹\,1600$$

We know that,
P = A – SI = 6600 – 1600 = ₹ 5000

120. (a) P = ₹ 4130, T = 7 yr and R = 6%
According to the formula,

$$\text{Annual payment} = \frac{100P}{100T + \frac{RT(T-1)}{2}}$$

$$= \frac{100 \times 4130}{100 \times 7 + \frac{6 \times 7(7-1)}{2}}$$

$$= \frac{100 \times 4130}{700 + \frac{6 \times 7 \times 6}{2}} = \frac{100 \times 4130}{700 + 126} = \frac{4130 \times 100}{826}$$

$\therefore$ Annual Payment = ₹ $\frac{4130 \times 100}{826}$ = ₹ 500

121. (d) Let the present age of Thomas = x
and present age of Tim = y
Present age of Tom = x – 3 (given)
According to the question,
After 19 yr, x + 19 = 3 (y) ...(1)
It is impossible to find the age of Tom and Tim, as there are two variables in the above equation. So, option (d) is correct i.e., comparison cannot be made from the given information

122. (a) A Commission received by Mohit in last week = ₹10
B. Manish's total income for last week
= 5 + 0.02 × 25 + 0.03 × 25 + 0.04 × 50
= 5 + 0.5 + 0.75 + 2 = 7 + 125 = ₹ 8.25
Therefore, A > B i.e. quantity in column A is greater than the. quantity in column B.

123. (b) A. A leap year has 366 days i.e. 52 weeks + 2 days.
As there cannot be two Tuesdays, therefore, required probability is zero.
B. A non-leap year has 365 days = 52 weeks + 1 day
This 1 day can be a Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday. Out of these total 7 outcomes, there is only 1 favourable case to the desired event.
$\therefore$ Required probability = 1/7
$\therefore$ B > A i.e. quantity in column B is greater than the quantity in column A

124. (b) A. Selling price of book sold by Amit

$$= 56.25 \times \frac{120}{100} = ₹ 67.50$$

B. Selling price of book Rita

$$80.40 \times \frac{95}{100} = ₹ 76.38$$

$\therefore$ Quantity in column B is greatet then that the quantity in column A i.e. B > A.

125. (d) Here, comparison cannot be made from the given information, as strength of any of the class is not given in the question.

126. (a) A. Side of square = 1.8 m
Area of square = $(\text{Side})^2 = (1.8)^2$
$= 1.8 \times 1.8 = 3.24\ m^2$
B. Radius of circle = 1 cm

$$\text{Area of circle} = \pi r^2 = \frac{22}{7} \times 1 \times 1$$

$= 3.14\ cm^2 = 0.000314\ m^2$
$\therefore$ Quantity in column A is greater than the quantity in column B. i.e. A>B

127. (d) Production of company C in 2009 = 45 lakh tonnes
Production of company A in 2014 = 50 lakh tonnes
So, required difference = (50 – 45) lakh tonnes
= 5 lakh tonnes
= 500000 tonnes.

128. (c) Production of company A in 2011 = 55 lakh tonnes
Production of company A in 2010 = 40 lakh tonnes
Difference = 15 lakh tonnes
$\therefore$ Required increase in production

$$= \frac{15}{40} \times 100 = 37.5\%$$

129. (b) Percentage of rice / fall in production from the previous for company B

$$\text{From 2009 to 2010} = \frac{60-50}{55} \times 100$$

$$= \frac{5}{55} \times 100 = 9.09\% \text{ (rise)}$$

$$\text{From 2010 to 2011} = \frac{50-60}{60} \times 100$$

$$= \frac{-10}{60} \times 100 = -16.66\% \text{ (fall)}$$

$$\text{From 2011 to 2012} = \frac{55-50}{50} \times 100$$

$$= \frac{5}{50} \times 100 = 10\% \text{ (rise)}$$

$$\text{From 2012 to 2013} = \frac{50-55}{55} \times 100$$

$$= -\frac{5}{55} \times 100 = -9.09 \text{ (fall)}$$

$$\text{From 2013 to 2014} = \frac{55-50}{50} \times 100$$

$$= \frac{5}{50} \times 100 = 10\% \text{ (rise)}$$

So, year 2011 shows the maximum percentage fall in the production from the previous for company B.

130. (d) Total production of company C in 2011 and 2012
= (60 + 60) lakh tonnes = 120 lakh tonnes
Total production of company A in 2009 and 1010
= (50 + 40) lakh tonnes = 90 lakh tonnes

$\therefore$ Required percentage = $\frac{120}{90} \times 100$

$$= 133\frac{1}{3}\%$$

131. (a) Average production per year of the company

$$A = \frac{50+40+55+45+60+50}{6}$$

$$= \frac{300}{6} = 50 \text{ lakh tonnes}$$

Average production per year of the company B

$$= \frac{50+60+50+55+50+55}{6}$$

$$= \frac{325}{6} = 54.17 \text{ lakh tonnes}$$

Average production per year of the company C

$$= \frac{45+50+60+60+45+40}{6}$$

$$= \frac{300}{6} = 50 \text{ lakh tonnes}$$

$\therefore$ Required difference = (54.17 - 50) lakh tonnes
= 4.17 lakh tonnes

132. (d) It is clear from the visual inspection, that there is no such location.

133. (d) Here, we can tabulate the passed to appeared percentage for different year.

Year	**Percenrtage of passed of appeared**
2009	$\frac{2513}{7894} \times 100 = 31.83\%$
2010	$\frac{2933}{8562} \times 100 = 34.25\%$
2011	$\frac{2468}{8139} \times 100 = 30.32\%$
2012	$\frac{3528}{9432} \times 100 = 37.40\%$

So, year 2011 has the least percentage of passed to appeared candidates from semi-urban.

134. (c) Number of semi-urban candidates appeared in 2010 = 8562
Number of semi-urban candidates appeared in 2011 = 8139
$\therefore$ Required percentage drop

$$= \frac{8562-8139}{8562} \times 100$$

$$\frac{423}{8562} \times 100\% = 5\%$$

135. (c) The percentage of candidates passed appeared in year 2012 for different locations are as tabulated below:

Locations	**Percentage of candidates passed to appeared in the year 2012**
Rural	$\frac{1798}{5032} \times 100 = 35.73 \approx 35\%$
Semi-urbnan	$\frac{3528}{9432} \times 100 = 37.40 \approx 37\%$
Metro Policies	$\frac{5158}{11247} \times 100 = 45.86 \approx 46\%$

Hence, percentage of candidates passed to appeared was approximately 35 from rural area.

136. (a) Number of candidates passed from rural in 2012 = 1798
Number of candidates passed from semi-urban in 2009 = 2513
$\therefore$ Total number of candidates passed from Rural in 2012 and semi = urban in 2009 = 1798 + 2513 = 4311 which is equal to total number of candidates passed from state capitals in 2013.

137. (b) Students of institute P at graduate level = 19% of 25400
Students of institute W at graduate level = 15% of 25400
$\therefore$ Total number of students at graduate level in institutes
P and W = (19 + 15)% of 25400
= 34% of 25400

$$\frac{34}{100} \times 25400 = 8636$$

138. (c) Number of students studying at post graduate level from institute T = 15% of 18600
Number of students studying at post graduate leve from institute V = 20% of 18600
Total number of students at post graduate level from institutes T and V = (15+ 20)% of 18600

$$= 35\% \text{ of } 18600 = \frac{35}{100} \times 18600 = 6510$$

139. (a) Number of students studying at graduate level in institute S = 13% of 25400 = 3302
Number of students studying at post graduate level from institutes S = 12% at 18600 = 2232
$\therefore$ Total number of students = 3302 + 2232 = 5534

140. (d) Number of students studying at post graduate level from institute R = 13% of 18600
Number of student studying at graduate level from institute
R = 11% of 25400

$$\therefore \text{ Required ratio} = \frac{13\% \text{ of } 18600}{11\% \text{ of } 25400}$$

$$= \frac{13 \times 186}{11 \times 254} = \frac{13}{5} = 13:15$$

141. (b) Number of students studying at post graduate level from institute = 20% of 18600
Number of students studying at graduate level from institute
T = 18% of 25400

$$\therefore \text{ Required ratio} = \frac{20\% \text{of } 18600}{18\% \text{of } 25400} = \frac{20 \times 186}{18 \times 254} = \frac{4}{5} \approx 4:5$$

142. (c) Production in 2011 = 17213 × 83.2 = ₹ 1432121.6
Production in 2014 = 12338 × 113 = ₹ 1394194
$\therefore$ Required production change

$$= \frac{1394194 - 1432121.6}{1432121.6} \times 100$$

$$= \frac{37927.6}{1432121.6} \times 100 = -2.6\% = -3\%$$

143. (b) Percentage change in workforce

$$= \frac{12338-17513}{17213}\times 100 = -\frac{4875}{17213}\times 100\% = -28.3\%$$

Percentage change in productivity over the period

$$2011-2014 = \frac{113-832}{832}\times 100 = \frac{29.8}{83.2}\times 100\% = 35.8\%$$

From above solution 142, percentage change in production

$= -3\%$

So, the percentage change is highest in the productivity over the period 2011 – 2014.

144. (b) It is clear that workforce and production have moved in the same direction. Both workforce and production have shown the percentage drop over the period 2011-2014.

145. (a) Length of the first train = 210 m

From Statement I,

Given, length of second train = 300 m

$$\therefore \text{Speed of first train} = \frac{210+300}{10}$$

$$= \frac{510}{10} = 51 \text{ m/s}$$

From Statement II,

Given, speed of second train = 60 km/h

As, length of the second train is not given, therefore it is not possible to find the speed of first train.

Therefore, only Statement I is sufficient to answer, the question while the data in Statement II above is not sufficient to answer.

146. (c) The word 'normally' in the Statement I makes it sufficient as normally just shows possibility.

In Statement II nothing is said about the rest of the members. So, both statements are insufficient to answer the question.

147. (b) We cannot say that smoking is injurious to health from only Statement I as there may be other reasons for longer life.

So, Statement I is not sufficient .

Prevalence of heart attack among smokers shows that smoking is injurious to health. So, Statement II is sufficient to answer the question.

148. (c) There may be other reasons of failures in Class XII. So, Statement I is not sufficient to answer the question Statement II is irrelevant.

Hence, question cannot be answered even by using the data given in the statements.

149. (c) Even both the Statements I and II together are not sufficient to answer the question. So, we cannot find when the prices of the air coolers will be the lowest.

150. (b) From Statement II, it is clear that a democratic system cannot operate without effective opposition.

151. (b) Total expenditure on taxes for all the years

$= 83+108+74+88+98 = 451$

Total expenditure on fuel and transport for all the years

$= 98+112+101+133+142 = 586$

$$\therefore \text{Required ratio} = \frac{451}{586} = 10:13 \text{ (approx)}$$

152. (c) Total expenditure of the company over these items during the year 2011

$= 324+101+3.84+41.6+74$

$= ₹ 544.44$ lakh

153. (d) Average amount of interest per year' which in company had to pay during this period.

$$\frac{23.4+32.5+41.6+36.4+49.4}{5} = \frac{183.33}{5} = ₹ 36.66 \text{ lakh}$$

154. (a) Total expenditure of all the items in 2009

$= 288+98+3+23.4+83 = ₹ 495.4$ lakh

Total expenditure of all the items in 2013

$= 420+142+3.96+49.4+98 = ₹ 713.36$ lakh

$$\therefore \text{Required percentage} = \frac{495.4}{713.36}\times 100$$

$= 69.45\% = 69\%$

155. (a) Required percentage

$$= \frac{\text{Total amount of bonus}}{\text{Total amount of salary}}\times 100$$

$$= \frac{3+2.52+3.84+3.68+3.96}{288+342+324+336+420}\times 100 = \frac{17}{1710}\times 100 \approx 1\%$$

156. (a) Population of village S in 2012

$$= 12160\times\frac{100}{38}\times\frac{11}{16} = 22000$$

157. (a) Population of village T below poverty line

$= 21\% \times 46\%$

Population of village Z below poverty line $= 11\% \times 42\%$

$$\therefore \text{Required ratio} = \frac{12\times 42}{11\times 46} = 23:11$$

158. (b) Population of village Y below poverty line 2012

$$= 32000\times\frac{100}{16}\times\frac{15}{100}\times\frac{52}{100} = 15600$$

159. (b) Population of village V in 2012

$$= 30000\times\frac{10}{15} = 20000$$

Population of village V in 2013

$$= 20000\times\frac{110}{100} = 22000$$

Population below poverty line of village V in 2013

$= 58\%$ of 22000

$$= \frac{58}{100}\times 22000 = 12760$$

160. (c) Let the total population of seven villages be x,

Then, population of village R in 2012

$$= 16\% \text{ of } x = \frac{16x}{100}$$

$\therefore$ Population of village R below poverty line in 2014

$$\frac{16x}{100}\times\frac{110}{100}\times\frac{51}{100}$$

Similarly, population of village Z in 2012

$$= 11\% \text{ of } x = \frac{11x}{100}$$

Population village Z below poverty line in 2014

$$\therefore \text{ Required ratio} = \frac{11x}{100} \times \frac{95}{100} \times \frac{42}{100}$$

$$= \frac{\frac{16x}{100} \times \frac{110}{100} \times \frac{51}{100}}{\frac{11x}{100} \times \frac{95}{100} \times \frac{42}{100}}$$

$$= \frac{89760}{43890} = \frac{2}{1} = 2:1 \text{ (Approx)}$$

161. (d) Rosneft is an integrated oil company majority owned by the Government of Russia.
162. (b) Ajaypal Singh Banga is the current President and Chief Executive Officer of MasterCard.
163. (b) Apple is considered to be the world's most valuable technology company. It was founded on 1st April, 1978.
164. (c) United Colors of Benetton is a global fashion brand, based in Ponzano Veneto, Italy. The name comes from the Benetton family who founded the company in 1965.
165. (c) Mobile messaging firm WhatsApp was acquired by facebook for US $19 billion on 19th February, 2014.
166. (c) Kailash Satyarthi founded the Bachpan Bachao Andolan in 1980 and has acted to protect the rights of more than 83000 children from 144 countries.
167. (b) Tamil Nadu Handloom Weaver's Cooperative Society Limited, popularly known as Co-optex, was established in 1935 and has a long and rich tradition in handloom history that dates back over 78 years.
168. (b) '2014: The Election that Changed India' is a book authored by Rajdeep Sardesai.
169. (b) According to the Fortune 500 list of Indian companies for 2014, state-run Indian Oil Corporation is the country's largest company in terms of revenue, followed by Reliance Industries and Bharat Petroleum in the second and third place respectively.
170. (d) Lipton is a brand of tea belonging to Unilever. The company is named after its founder Thomas Lipton.
171. (a) Idukki, district of Kerala has become first district in India to have high speed Rural Broadband Network, i.e. National Optical Fibre Network (NOFN) internet connectivity.
172. (c) ICICI Bank, on 7th January, 2015, launched the country's first contactless debit and credit cards that use the near–field communication technology, enabling one to make payments by just waving the card near merchant terminals instead of swiping the same.
173. (a) NITI (National Institution for Transforming India) Aayog is a policy think-tank of Government of India that replaces Planning Commission and aims to involve the states in economic policy-making in India. Arvind Panagariya is the Vice-Chairman of NITI Aayog of India.
174. (d) The Indian Super League was founded in 2013 in an effort to make football a top sport in India and to make Indian football a major player worldwide. It features eight franchise teams from all around India. North-West United is not one of the them.
175. (b) Jim Yong Kim is a Korean American physician and anthropologist. He became the 12th President of the World Bank on 1st July, 2012.
176. (a) Qantas has been named the world's safest airline by AirlineRating.com in January, 2015.
177. (d) The European Union comprises 28 member states. Serbia is not a member of the European Union.
178. (c) Bharti Enterprises, the parent company of Airtel, has floated a new joint venture with Japanese internet firm SoftBank Corp. for offering mobile internet services in India.
179. (d) Snapdeal.com announced the launch of 'Agri Store', offering products like seeds, fertilisers and irrigation tools, among others, to farmers.
180. (a) CELAC (Community of Latin American and Caribbean States) comprises 33 countries, speaking five different languages.
181. (d) In September 2014, Zomato acquired Poland-based leading restaurant search service gastronauci for an undisclosed sum as part of its on going expansion strategy in Europe.
182. (d) China aims to induce more than 60 billion cubic metres of additional rain each year by 2020, using an 'Artificial Weather programme to fight chronic water shortages.
183. (c) India's leading multiplex chain, PVR Limited, on 5th January, 2015 has been selected as a FIELD Global Partner for Harvard Business School (HBS) in India, under which students of the business school will study its business model and develop a case study.
184. (d) Renewable energy developer and technology provider SunEdison has signed an MoU with Karnataka government to develop five gigawatts of renewable energy within the state over the next 5 years.
185. (d) As per rules, government has to get all money bills related to the Union Budget passed within 75 days of the presentation of the budget.
186. (d) Andhra Pradesh Chief Minister Chandrababu Naidu, on 11 th December, 2014, launched the Farmers Debt Redemption Scheme to give debt relief to every eligible farmer.
187. (b) The Justice Mudgal Committee, headed by farmer High Court was associated with betting and spot-fixing scandal in cricket.
188. (d) Alur Seelin Kiran Kumar is an Indian space scientist and the current Chairman of the Indian Space Research Organisation (ISRO) having assumed office on 12th January, 2015.
189. (d) The SAARC summit 2016 will be hosted by Pakistan. The summit will take place in Islamabad.
190. (d) 21st June, was declared as the International Day of Yoga by the United Nations General Assembly on 11th December, 2014.
191. (d) HDFC Bank launched its mobile banking facility in Varanasi, that offers to turn a mobile phone into bank branch.
192. (a) Power Grid Corporation is not a Maharatna Company.
193. (b) Prime Minister Shri Narendra Modi, on 29th November, 2014, flagged off first passenger train to Meghalaya from Asom.
194. (d) Kerala has become the first state in the country to have 100% coverage of all households with bank accounts under the Pradhan Mantri Jan Dhan Yojana (PMJDY) in a record two-and-a-half months.

195. (c) Small Industries Development Bank of India (SIDBI) is a non-independent financial institution aimed to aid the growth and development of Micro, Small and Medium-Scale Enterprises (MSME) in India. It is headquartered in Lucknow.

196. (d) Singapore, on 8th December, 2014 signed an Memorandum of Understanding (MoU) with Andhra Pradesh to prepare a master plan and develop a world-class capital city of Andhra Pradesh.

197. (b) According to IMF, the economy of China is likely to grow 6.8% in 2015.

198. (b) Germany won the Men's Hockey Champions Trophy 2014 after defeating Pakistan.

199. (c) Five times Chess World Champion Viswanathan Anand won the maiden London Classic chess title 2014 after defeating British Grandmaster Michael Adams.

200. (c) The European Football Championship 2016 will be held in France from 10th June to 10th July, 2016.